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Architectural Record

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The

Architectural Record.

VOL. I. JULY-SEPTEMBER, 1891. NO. 1.

BY WAY OF INTRODUCTION.

MEN play the hypocrite oftener with their purposes than with their actions. It is in the obscurer field that we keep most jealously not only what friend Nym styled "the behavior of reputation," but most frequently affect reputation itself. There is, perhaps, no occasion—unless we find a parallel in politics—where the temptation to parade purposes, to spread before the world a rich Barmecide feast of virtue and good intention is stronger than in introducing to the public (with interested motives) a new publication. Few publishers can be brought to feel particularly grateful to an editor for even a restrained frankness on such an occasion. No wider candor is permitted than Sganarelle's: "I am not so scrupulous as to tell you the whole truth." We know of no publication started avowedly for the sordid but yet not disreputable purpose of making money. True, in making the venture a measure of financial success may have been hoped for tacitly, as not unwelcome or inconsequential; but, of course, if it came, it was merely because from of old it is not permitted that the righteous shall be forsaken or their seed beg their bread. The printing press always is set in motion to publish some new gospel, to restate some old one unheeded, to vindicate some human right tyrannized over or despised; but for gain—never. The printing press should not have left the precincts of the church; unless, indeed, there came to be too little room for it there; which, if everything stated be exactly true, is plausible.

We hope this frankness has not cut the ground from under our own feet; for we want to say that THE ARCHITECTURAL RECORD is a publication with somewhat of a purpose over and above a purely commercial one. This is due to the very character of the field which the magazine must occupy, as well as to intention. The field is one which must be entered with serious purpose or not at all. To amuse the public with Architecture, obviously is out of the question. Not that the art, as practised at present, is without a ludicrous side, or is free from rare little bits of humor, grotesqueness and caricature; but unfortunately there are so few who would perceive or appreciate the fun that the publisher will be the only one who will pay for the joke. As to merely recording—so often in a blunt, free, indiscriminate way—contemporary work popularly classed as architecture, that task already is even too abundantly performed by numerous weekly publications. Only the higher field is unoccupied; but in this country, perhaps more than in any other, entrance into this higher field imposes serious responsibilities; for therein one is brought face to face with the gravest and least assuring facts of our national life. If, as Amiel says, the measure of a civilization is the number of perfected men that it produces, if the test of every religious, political or edu-

cational system is the men which it creates, what judgment must we pronounce upon American civilization and the institutions and systems under which we live? It is true that we have judged—but from a point of view quite different from Amiel's—the civilization of our day and country according to principles which we regard as fundamental and durable enough; and we find alike complete justification of it, and ample promise for the future in the great gospel which the Census Bureau gives us from time to time; in tables of exports, statistics of manufactures and other arithmetical statements. The danger really is that our judgment may not be as securely founded as we think it is. Perhaps Amiel, dreamer so indifferent to tabulated civilization, idealist so keenly sensitive to the spiritual side of life, may be closer to the truth than we are; and by insisting upon the character of the man produced by a civilization as the test of that civilization's worth and true position in the moral world, which is God's, set up the real abiding standard by which, in the course of things, nations are judged.

But, it may be said, this is merely emotion set to a dithyrambic key; the material facts of life are, after all, the most important, and Brillat-Savarin had hold of a wider truth than Amiel's when he said "the destiny of nations depends upon the manner in which they feed themselves." Besides, is not George William Curtis an apostle of light, and has he not told us that "the railroad is the culmination of civilization?" No doubt there is something of a truth in the Chinese belief that the stomach is the seat of the understanding. We would probably have little philosophy if it accompanied a really empty belly, and without an ample command of material possessions the greatness of no nation would have arisen into the "sunlit heights." But assuredly no nation ever became great solely by reason of its material prosperity, and such mental activity as finds a congenial environment in goods and chattels, and what Sir Thomas Browne called the "vulgar parts of felicity."

No, there are serious reasons for doubting that the railroad is the culmination of civilization. The steam engine has given us a wider touch with life, no doubt; but has it given us a finer? In no country, and at no other time, has mere existence been so full, so abundantly provided for as in this country at the present moment. Ours is no anæmic existence trembling with the fear of pauperism; but one to which the seasons are husbandmen whose harvest field is a continent. On the other hand, is there a civilization on the face of the earth as uninteresting as ours, as completely material, as lacking in dignity and distinction, as vulgar, commonplace and shabby? President Eliot calls vulgarity our national disgrace, and the saying is sufficient.

All this has been said before repeatedly; it is old enough. The pity is it is so old. We have been unperceptive: we have become indifferent. We can hardly believe that what President Eliot says is true: our self-complaisance is so fat and well fed. With that Prince of the Bourgeoisie, M. Jourdain, we exclaim, "Il n'y a que des sots et des sottes ma femme que se railleront de moi." Of course. Those who laugh at us are fools, and we need not come into contact with other people if they be disagreeable. We have a continent to expand in, and great blaring newspapers that have no doubt about our peculiar admirableness. How fortunate we would be if self-laudation could ever be in the right key. But it is always too high or too low; it never harmonizes exactly with our feelings, and though our newspapers and all who love the popular tone may praise us, though Mr. Curtis may assure us, in the very language of "one of the prophets," "that the railroad is the culmination of civilization;" something akin to that saying of Amiel's will sing through it all: "the test of every religious, political or educational system is the man which it forms," and rob us of the fullness of our satisfaction. Yes, it is better for us to leave the newspapers; go over at once to President Eliot and accept his judgment about ourselves.

The vulgarity of which he speaks—not the vulgarity of table manners, but a spiritual coarseness which in the "familiarity between the mind and things" reveals itself in our social life, in our politics—that malodorous subject—in all our activities, wherein we pass aside from the "dignity of humanity"—this vulgarity we believe is the chiefest obstacle in the way of the greater number of the reforms for which pulpit, press and platform are working. For there is no deficiency of intelligence among our people. It is feeling that is lacking—right feeling. Upon a certain side of life their sensitiveness is dull. That unfortunate man who spoke the truth probably recognized this fact from his position when he declared the purification of politics to be an iridescent dream. So it is; so it will be until people become keenly sensitive to how dirty, contemptible, vulgar our political life is. Are not the facts of that life known by heart to-day by everybody? They are not rightly appreciated, that is all. So it is in social matters, commercial life, and even within the field of religion.

Whence, then, shall we look for assistance? That becomes the important question. We have no hesitation in answering that it is to Art we must turn—only in that direction does hope for us lie. If the pressure of life did not make as strongly as it does towards the cities, it might be necessary to give the greater importance in the work of reformation to Religion; for, in the history of the race, Religion, apparently, has found its most favorable environment in rural habitations; as though Nature held a fuller and clearer revelation of Divinity than the works of man. The city, however, has been the favorable environment of Art. There only has it thrived and reached its completest expression. Another consideration there is which makes us regard Art as the ark of salvation—conditions in this country are making more and more strongly than hitherto for Art. Our people are becoming the rich men of the earth, their manner of living more sumptuous and leisurely than ever. At present Art with us means little more than decoration, an appendage and circumstance to tradesmen's prosperity. Nevertheless, it has a vital position, though a degraded one, in the lives of our people. What has to be done is to give it its proper position, to reveal its divinity, to make people feel that Art is not merely decoration, the legitimate function of which is to make a fortune conspicuous; but is the light breaking in upon us from the perfect world beyond our day's circumference; "the fruitful voice of God" revealing to us "what we are but in hopes and probability."

Art has only one revelation, but many forms. Whether it be Poetry, Music, Sculpture, Architecture, the spirit that speaks is the same, the message to us is the same. They make alike a similar demand upon us for truth, integrity of purpose, seriousness, nobility. They are eminently aristocratic, not with the aristocratic spirit of a regime, with its rise-Sir-Knight formula, but in the loftiness of the higher nobility whose allegiance is given to Truth.

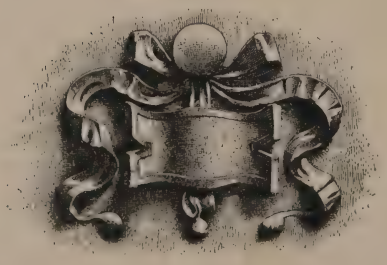
But though the message of Art in all its forms is the same, in some it is more interesting to us than in others; and there are many good reasons why at this moment the people of this country could be more seriously interested to a greater degree in Architecture than in any other of the arts. In the first place it is the most practical, which fact should have much weight with a people so practical as we are. It waits upon, or more properly speaking it accompanies, utility. Compared with Painting, Music, Sculpture, or even Literature, its field is wider than theirs; it touches Life, our common daily Life, at so many more points than they do. It needs no stage, special setting or circumstance. It is content to occupy our streets; bend itself to our commonest circumstances and conditions, dignify the meanest materials, illuminate so many of our ordinary necessities. It is the only art which commerce and trade in a degree foster, necessitate, and even welcome as a graceful auxiliary. Civic pride, commercial prosperity, the ostentation

of individuals create an occasion for it. True, Painting, perhaps, has a more popular language than Architecture, and Music one that is more intimate and enticing ; but Architecture appeals to the public in a manner so much more frequent, conspicuous and insistent than either that, if it be not, it might easily become the more readily understood.

The difficulty is that people generally are so ignorant of even the A, B, C of Architecture. The meretricious accidents of the art—mere size, ornateness—the barbaric qualities which dazzle and impose upon the popular mind, are so exclusively appreciated that the essential, lasting and really veracious manifestations of the art are overlooked. With Music and with Painting the daily press does something after its peculiar manner to lead the public and prompt a habit of selection which, while not over nice or too judiciously exclusive, is to some extent educative. But with Architecture no work of the kind is done. Of late the magazines have given some attention to it, but even if continued the effort is too intermittent and cursory to produce results of much importance. A more persistent attempt is needed to build up "a pile of better thoughts" sufficient to be fruitful in great effects, and that is the work which, in really a humble frame of mind, the projectors of THE ARCHITECTURAL RECORD now undertake—not pedantically or after the manner of the pedagogue, but popularly, illustratively, even tentatively, as a traveler sets out for a destination not immediate nor lying at the end of a well-defined, direct and visible route. The road in part has to be discovered, and in the search, which is to be progressive, our readers are asked to accompany us. While keeping close to the invisible presence of the Ideal we must not lose touch with what exists, what each day brings forth, with the unavoidable and limiting conditions of our time. No effective work can be done by cutting adrift from what is. Reformation must be *from* what is and not *against* what is. Artificial progress, there is enough of it. We must not forget that the "genius of each race brings forth its best products only when it works in harmony with the laws of its own nature, expressing without affectation the ideas and sympathies excited by immediate contact with the facts of life." The facts of life! How inexorably, how tyrannously even the commonest of them demand recognition, and how many the aspirations and noble efforts which they have broken as glass, leaving only a sound like music to linger in the silences of life.

"Cross a step or two of dubious twilight,
Come out on the other side, the novel,
Silent, silver lights and darks undreamt of,
Where I hush and bless myself with silence."

Harry W. Desmond.





THE ROMANESQUE REVIVAL IN NEW YORK.

IT is an unusual comfort in architectural history or in architectural criticism to find a word denoting a style, about the meaning and the applicability of which there can be no question; and such a word is Romanesque. Almost every writer on Gothic architecture has to begin by defining his terms, even if he does not begin by quarrelling with the accepted terms. The latest of these writers, and one of the ablest and most instructive of them, Mr. Charles Herbert Moore, finds himself compelled, while accepting the word Gothic, in spite of the objections of the English critics who for a generation or two have been vainly trying to substitute "Pointed," to use the word in a somewhat esoteric sense, and so as to exclude a majority of the buildings that have been commonly and loosely classified with those to which he proposes to restrict the term. But with regard to Romanesque there is no difficulty and no ambiguity. Historically, it is that manner of building which came to prevail over Western Europe after the fall of the Roman Empire, which was directly or indirectly inspired by Roman examples, and which is yet not Roman but Romanesque. The building of Europe came to be Romanized as its law came to be Romanized and as its languages came to be Latinized, and fallen Rome had the same revenge upon its conquerers that vanquished Greece had had upon victorious Rome. The local modifications were wide and many, but the influence of Roman architecture is everywhere traceable. There is one Romanesque of Lombardy and another Romanesque of Normandy and another Romanesque of the Rhine and another Romanesque of Provence, the special seat of "Romance," but the building of Western Europe from the fourth century to the thirteenth, Teutonized or Gallicized as it may be, testifies unmistakably to its origin. Another concurrent and yet divergent movement there was from the same source, and it was that which determined the architecture of Eastern Europe and of Asia. The great gift that Roman engineering made to the world was the introduction and the technical development of the arch, including its derivatives, the vault, which is merely a prolonged arch, the intersecting vault, and the dome. These features were technically but not artistically developed; that is to say, the Roman treatment of them was engineering and not architecture. It was reserved for later gen-



HOUSE IN NEW YORK CITY.

Riverside Drive and 108th Street. Frank Freeman, Architect.

erations to convert them into works of art, and the first step towards doing this was to omit the irrelevant ornament under which the Romans had concealed what they were really doing, and to develop the architecture of the structure out of the structure itself. The Romanesque builders of the West undertook this with the arch and the vault, and created Romanesque architecture. The Greek revivalists, as Viollet-le-Duc calls them, of the Lower Empire undertook it with the dome and created Byzantine architecture. From the former came the Romanesque monuments, which a later inspiration was required so to re-create into Gothic that but for the monuments that bear witness to the intermediate stages of the process we should never suspect that Amiens and Cologne were derived from the Roman basilica. From the latter, the true Greek Renaissance, came not merely by degeneracy the barbarism of Russo-Greek architecture, but by development the whole of Saracenic domical architecture, so that it is to the decline of the Roman Empire that we ultimately owe the architecture of the mosques as well as of the cathedrals, and but for the builders of Byzantium there would have been no Alhambra and no Taje Mehal.

We are fortunate enough to be able to establish with precision the very building in which each of these two great architectural currents had its source. The Palace of Diocletian at Spalatro, built at the end of the third century, was the origin of Romanesque, as the great church of Saint Sophia, built three centuries later, was to be the origin of Byzantine building. To the dilettanti of the eighteenth century the former edifice embodied the last debasement of Roman architecture. "We are informed," says the historian of the "Decline and Fall," "by a recent and very judicious traveler, that the awful ruins of Spalatro are not less expressive of the decline of the arts than of the greatness of the Roman empire in the time of Diocletian." It was reserved for a later and more discerning criticism to perceive that the change which, to the architects and the amateurs of a hundred years ago, was a mere corruption, was in fact the mark of life and progress, was a change which, as Mr. Street says, "at once revolutionized all existing architectural laws;" which, as Mr. Freeman says, "was the greatest advance that a single mind ever made in the progress of the building art." Mr. Freeman again is entitled to the credit of being the first historian of architecture to appreciate it in full, as he is the only one who has had the insight and the courage to describe the classical Roman architecture as being, what in truth it is, a transitional style, "a transition from Grecian to Romanesque, from the consistent system of the entablature to the consistent system of the round arch."

Great as the change was, it was very simple, and was the result of analysis applied to the elements of the Roman monuments as it had never been applied by their builders during the high and palmy days of the Empire. On the exterior of their arched walls the Romans had applied the Greek orders, and superposed them as many times as the building had stories—for the "colossal order" that included several stories was a device reserved for the Renaissance of a thousand years later. In their vaulted interiors, they had retained a piece of the entablature over the column that supported the vault. What the builder of Diocletian's palace did was to perceive that the entablature into which the lintel was developed in Grecian architecture was superfluous and meaningless in an arched building and to act upon his perception. Obvious as this discovery is, it was not made by the Roman builders of the "classical or transitional" period, and it is not applied even yet in the schools of Europe which still go on inculcating and repeating in official architecture the hybrid of which the final cause was the æsthetic insensibility of the Roman builders. The builder of Diocletian's palace omitted the entablature, retaining the column and restoring to it the significance it had lost in the applied orders of the Romans by springing the arch directly from its capital. That this should be done with some awkwardness was inevitable in a first essay.



INTERIOR, HOLY TRINITY CHURCH,

Lenox Avenue and 122d Street, New York City. William A. Potter, Architect.

In some places the arch itself is but a bent entablature; in others the entablature is retained under the arch, an arrangement which is at least more eligible than that of the classical Romans, whereby it was put over the arch, and the strong thing protected by the weak thing. Nevertheless, the building bears the first evidence in Roman architecture that its designer reasoned upon what he was doing; and it is as purposeful as it is rude. It is doubtful whether it is not its purposefulness as much as its rudeness that has led the modern classicists to look upon it as the work of a decadence rather than of an advance; for it was the living and fruitful germ of all the architecture of Western Europe for the next millennium.

Romanesque architecture, then, as distinguished from the classic that preceded it and from the Gothic it preceded, is that architecture in which the Roman elements of the column and the round arch are disentangled from the Grecian elements which were rendered obsolete by the introduction of an arched construction, but which, in spite of having lost their meaning, had lingered on as survivals during the whole of the Roman classical period. In Romanesque these elements are employed with purpose and meaning, and the architecture of a building becomes again, as in Grecian days, the development and decoration of its structure, with this difference, that the functional modeling which in Grecian architecture is confined to the portico is in Romanesque extended to all the parts. It is this rationalizing of its elements that distinguishes Romanesque from Roman. But throughout the Romanesque period the elements derived from Roman architecture maintain a separate existence. The column, even when employed as a decorative nookshaft, even when multiplied, and grouped with reference to the differentiation of the structure it supports, or when attached to a pier for the same purpose, continues to assert itself as an independent member. It was only when the development of vaulting, incidentally involving what is commonly called the "invention," but should rather be called the evolution, of the pointed arch, had been carried so far that equilibrium was maintained by the opposition of active forces and not by the mere inertia of brute masses; that the column and the clustered column gave way to the modelled pier, in the modelling of which every member of the vaulted superstructure was represented and foretold, that Romanesque became Gothic, was "re-created" into Gothic, to use the expression of Mr. Charles Herbert Moore, who has given the most comprehensive and interesting account extant of this process of transition.

These changes, the development of Romanesque as well as its re-creation into Gothic, were all the result of the effort to give an artistic expression to an arched construction by the functional modelling of its parts, and it is to this effort that is due the development of the forms that are now recognized as the badges of the style. Romanesque architecture succeeded in attaining such an expression in the simpler construction of arched openings in walls. Gothic attained it in the more complicated construction of arching over spaces, that is to say, of vaulting.

As this is not an historical essay, it suffices to point out this difference in order to indicate that, as we no longer build vaults, or perhaps we should say as we do not yet build vaults, that stage in the progress of mediæval architecture before the vault was artistically developed is perhaps the more fruitful of precedents applicable to the usual problems of the modern architect. Ever since the "plenary inspiration of Vitruvius" began to be called in question by English architects, and consequently by American architects, the earlier as well as the later stage of mediæval architecture has been studied and brought under contribution. In England the insular variety of Romanesque was naturally thought to comprise all Romanesque, insomuch that a generation ago any round-arched building that was evidently not classic was dismissed compendiously as "Norman." As a matter of fact, however, such of the earlier essays here in Romanesque as were of most interest were suggested

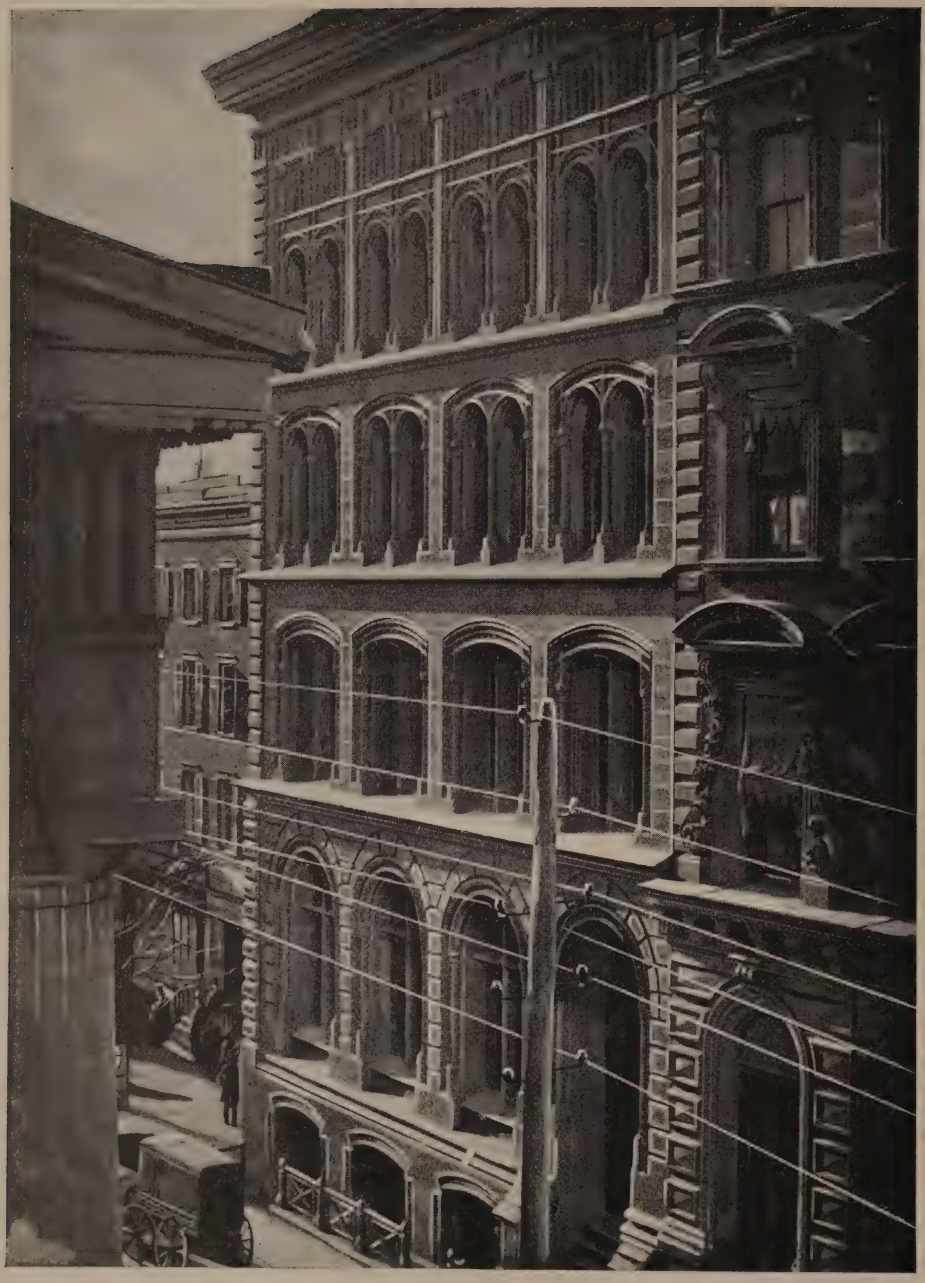
by examples of other phases of Romanesque, and resulted from the Romanesque revival introduced into Munich nearly sixty years ago. The Astor library was evidently enough inspired by Gärtner's design for the Royal Library in Munich. The criticism commonly passed upon the prototype is equally applicable to the later work. Though it is respectable and inoffensive, it is tame and ineffectual. St. George's Church, by Blish and Eidlitz, now nearly half a century old, is also evidently a result of the Bavarian revival, and owes its being to the Romanesque of the Rhine. It remains one of the interesting churches of New York, though the relative shortness is a defect in the general composition that the designers did not succeed in dissembling or mitigating, and the parts are of more value than the whole. The open spires, to be sure, are a development of later Gothic, though the towers that carry them are treated with a Romanesque massiveness; but the fine semi-circular apse is plainly suggested by the similar feature in the twelfth-century churches of the Rhine, of which its treatment shows an intelligent analysis. Mr. Eidlitz's Produce Exchange, for which neither its pretentious successor, nor still less the Army Building that now occupies its site, offers any artistic compensation, is as plainly as the church a proof of its author's studies in German Romanesque, and the very effective transeptual arrangement, with the arcaded attic in each of the faces, was as evidently a reminiscence of the works of that style as it was evidently an improvement upon them. The Brooklyn Academy of Music also testifies to its author's admiration for the Wartburg and for Barbarossa's palace at Gelnhausen. In commercial architecture, the American Exchange Bank and the Continental Bank, though many of their details are derived from German Gothic, belong in their general treatment and character to German Romanesque. The Continental Bank is much the more artistic and successful of the two. As an example of harmonious design, in which the lines are developed from basement to cornice, it was not equaled in commercial architecture before the introduction of the elevator revolutionized that architecture, and it would be hard to show that it has been surpassed since. It would be hard, also, to speak too severely of the absolute insensibility to the fact that they were dealing with a work of art shown by all concerned in putting on the puerile and incongruous addition of two stories, by which the design is now obscured, and the building spoiled. In church-building various phases of Romanesque other than Norman have inspired other examples. So far as it need be classified, Mr. Wrey Mould's All Soul's Church, at Fourth avenue and Twentieth street, is a specimen of Italian Romanesque, of which also a church in South Fifth avenue, and another in Second avenue, near Twenty-third street, are faithful but tame examples. A more interesting example was furnished by Mr. Renwick in the design of St. Bartholomew's, which is noteworthy for the ingenious and generally judicious employment of color. In commercial architecture Mr. Harney's building at Bond street and Broadway, which dates back to the early seventies, though it cannot be called an example of Romanesque, constitutes a tolerably distinct reminiscence of the Norman variety of the style, and a very respectable building it is, in spite of its drawbacks of detail, and an oasis in what has lately become more than ever the dreary architectural desert of middle Broadway. The effect of that thoroughfare from City Hall Park to Grace Church is now more excruciating to a sensitive person than that of almost any other street in New York. It is only fair to remember that it was a very different and a much more respectable street some twelve years ago when Mr. Freeman visited our shores and took Broadway for an illustration of the application of Romanesque to modern exigencies, declaring that in it the main lines of the style were very happily reproduced. Though he added that he spoke only of the main lines, without committing himself either to detail or to material, and though Broadway then and Broadway now are two things, the saying remains rather dark. Mr. Free-



THE OLD PRODUCE EXCHANGE.

Whitehall Street, New York City.

Leopold Eidlitz, Architect.



THE CONTINENTAL BANK BUILDING,

Nassau Street, New York City. Leopold Eidlitz, Architect.

man is historically, at least, if not æsthetically, our great authority on Romanesque, and he would not have made such a remark without a meaning. The meaning must be that Mr. Freeman has the happy and enviable faculty of not seeing what is not worth looking at, and if one could have confined his observation of Broadway twelve years ago to buildings that had an architectural interest he would undoubtedly have found the "main lines" of Romanesque very prevalent.

The remark, at any rate, indicates that there were strong men before Agamemnon, and that Romanesque was not unstudied or unknown before the introduction of what everybody who is at all interested in the subject recognizes as the Richardsonian Romanesque. We may paraphrase Mr. Freeman's saying about the architect of Diocletian's palace by saying that our own time and country have been witness to the most extraordinary and widespread influence ever exerted by one man in the progress of the building art, unless we except the work of Sir Christopher Wren. Certainly no architectural career so brief as Mr. Richardson's has been so nearly epoch-making. It lasted but little more than ten years; for the buildings he did on his return from Paris, before his association with Mr. Gambrill, had little that was distinctive, the earliest of them being reminiscences of his academic studies, and done after the straitest sect of French official architecture. The court house at Springfield, finished in 1876, and the North Church, done at the same place and time, were in many ways admirable and they were admired, but they did not exert any marked influence on the practice of American architecture. It was Trinity Church, Boston, that first established his position and gave him his vogue. That was finished in 1877, and its author died in 1886. His professional success was assured by that building, which is an unmistakable example of Provençal Romanesque, though the most striking and successful of its features, the central tower, was obviously enough suggested by the tower of Salamanca. The Provençal Romanesque, as the historian of it has explained, the whole Romanesque of Southern France, is precisely that variety of Romanesque, excepting only the Italian, in which the survival of the classic Roman elements unmodified is the most obstinate. In the monuments of Rhenish or of Norman Romanesque the process of de-classicising has been carried so far that it needs historical knowledge to affiliate Worms or Speyer or Bayeux or Caen to the architecture of Imperial Rome. On the other hand, there can be no question in the mind of anybody who has ever seen the monuments of Rome, from which source the fronts of Provence and Anjou and Auvergne are derived, with their rows of classic columns, retaining often the classic entablature, sometimes authentic relics of antiquity, but by their treatment enriched and barbarized into a picturesqueness that was well calculated to captivate a romantic modern mind. It is well worth noticing, too, that in Southern France alone, outside of Italy, has the Byzantine influence been introduced, which in our revival has had so controlling an influence upon carved ornament. St. Mark's does not testify more strongly than the general form of St. Front at Perigneux to the ascendency of the Lower Empire in those Southern lands, an ascendency of which the monuments of Normandy and of Norman England and of Germany bear no trace. These were the sources of Richardson's inspiration in the brilliant series of works, the attraction of which has drawn the younger architects of the whole Union into the style in which they were wrought. There is no part of the country in the present building of which his influence is not traceable. It may be said, indeed, that the Provençal Romanesque has come to be more nearly the American style than any that preceded it, with the exception of the American Renaissance, and with this great difference from that, that what we have called the American Renaissance took hold upon the least competent and least sensitive designers of the country, while the Richardsonian Romanesque has influenced the most sensitive and the most competent.



HOLY TRINITY CHURCH.

Lenox Avenue and 122d Street, New York City. William A. Potter, Architect.

In New York, with which alone we are now dealing, this influence is naturally most conspicuous in the new quarter, amounting to a new and strange city, that has been built up within the past few years upon the "West Side." So strange and exotic of aspect is this new quarter that a New Yorker of 1880 even, who might be suddenly dropped into it, would never recognize it as a part of the down-town brown stone city that he knew. The West Side is not in any strictness a Romanesque town, to be sure, but the prevailing and pervading architectural element which gives it its character is undeniably the Romanesque. With the specific manifestations of this we shall deal presently. They are nearly all essays in domestic architecture with the important exceptions of three or four churches, and they are all evidently suggested immediately or remotely by the work of Mr. Richardson. One of the churches, and the most costly and "important," is that of St. Agnes, in Ninety-second street, and it is one of three recent churches designed by the same architect, Mr. W. A. Potter, in which not only is the treatment distinctly Romanesque, but the combination of material is adopted which Mr. Richardson introduced in Trinity Church, Boston, and which he afterwards often employed: the combination of a light granite for the field of the wall with a dark brown stone for the wrought work. It is not only an effective and strong contrast of color, in Mr. Richardson's hands, but it had the further advantage that the material which is the stronger in color and is thus properly used to lend emphasis to the parts that are structurally of most importance is also the weaker mechanically, and thus not only justifies but demands an increase of the magnitude of the features in which it is employed, that would be manifestly irrational if the more strongly colored material were also the stronger, or even if the same material were used throughout. Mr. Richardson was very prone violently to exaggerate the size of parts, and in his work the employment of sandstone in combination with granite dissembled this fault.

The earliest of the churches in which this combination was used by Mr. Potter, is that of the Holy Trinity, Harlem, which is not only a church but a complete parochial "plant" so to speak, including a rectory and an extensive parish building. The requirements that these should be accommodated upon a plot 150 feet in its longer dimension by something less than 100 in the shorter, has given rise to an unusual disposition by which the church is flanked on one side by the rectory and on the other by the parish building, the axis of the nave being parallel with the front and the street gable that of a transept. This arrangement results, however, in a picturesque and effective grouping. The parish building, of which the flank on the avenue is a long wall of two moderate stories, flanked by gables rising a story higher, is kept so low that the ridge of its roof, crowned midway with a lantern, is relieved against the principal gable of the nave which rises behind it, and the three gables "compose" very well together, being in turn dominated by the massive square tower that consists, above the deeply and heavily moulded entrance and its attached pediment, of a single very tall belfry stage of two lights in each face, raised on the side so as to clear the roof, but dropped on the front so as to occupy the whole space above the pediment. The treatment, of clustered shafts and heavily-moulded arches and deep reveals, is simple and massive, and gives an effect of great power that is enhanced by leaving the lights entirely open. It would probably have been still further enhanced if the angle piers had been carried up in the brown stone, in which the openings are framed, instead of in granite crossed with occasional narrow courses of brown stone, and certainly it would have been better if the granite had not cropped out again in the pinnacles capped with brown stone that rise above the heavy cornice in brown stone which completes the tower proper. It seems that the architect also has been brought to this opinion by the contemplation of the executed work; since in his later church of St. Agnes, where the same combination of mate-

rials is used, the belfry stage, here much shorter and richer, is entirely of brown stone, excepting the spandrils of its arches. The Church of the Holy Trinity, nevertheless, is a real architectural composition and a very successful one, as it is also unmistakably and emphatically a structure of masonry. There are few churches in New York so dignified and solemn and "churchly" in expression, or that so strongly recommend Romanesque as suitable for church building.

The combination of the same materials is better managed, as has been intimated, at St. Agnes' chapel in West Ninety-second street, another and still more extensive parochial "plant" comprising parochial schools in addition to the church building, extending from street to street, and completely detached all around, though not on a corner. The peculiarity of the general design is the introduction of a central tower, or cimborio, which is yet not a tower but more properly a square dome, so to say, occupying the whole of the crossing, and pierced with windows that open directly into the interior. The treatment of it is massive and simpler than that of the principal front or of the tower, and it invites the criticism that it is either too important or not important enough. Apparently it ought to be either a mere lantern, in which case it might have been kept lower and even simpler than it is, or else developed into the dominant feature of the building, as is so successfully done at Trinity Church, Boston, in which case its general form might have been more intricate and its detail much further elaborated. As it is, it competes rather than co-operates with the tower, with which it does not group very happily, either in a distant or in a near view; while the richer treatment of the tower converts the simplicity of the central feature into a heaviness that comes near rudeness. The tower and the cimborio, indeed, do not go together. This is the main drawback to the complete success and unity of the building. The tower by itself is an excellent piece of design. It is a campanile; that is to say, a straight unbuttressed shaft in which the ornament is confined to the belfry stage, and the two materials of which it is composed are here admirably worked together. The shaft is of granite, with only a belt of brown stone to mark each of its stages until the stage next below the belfry is reached. This is treated as a transition from the solid shaft to the open belfry, and is as original as it is successful. The granite wall is framed in brown stone at the angles, and above and below, the edges of this frame being defined by mouldings, it is belted with the same material and at the centre of each face is a round traceried window also in brown stone, but not a rose window, since the motive of the tracery is two links crossed at right angles. Here this quaint disposition is as successful as it is quaint; more successful than in the enlargement of it in the head of the central window of the front, where the larger scale gives it a somewhat baroque and clumsy air. The belfry stage itself is in each case a triplet of shafted arches in brown stone, while the reappearance of the granite in the spandrils of the arches allies the flower to the stalk, as it were, and unites the whole tower into one feature, constituting it in this respect a marked advance upon Mr. Richardson's tower of the City Hall in Albany, to which this has a general resemblance, but in which a belfry all brown stone surmounts a tower all granite, to which it bears no organic relation. The starkness of the square shaft here is relieved, not only by these devices but by the projection from its base of a staircase that becomes a picturesque external feature, while between the tower and the transept is an apsidal chapel that groups very effectively with the other features of this side. The opposite side is distinguished by the extraordinary massiveness of the treatment, not only in the cimborio, but even more in the solid granite buttresses, belted and capped with brown stone, that are carried above the eaves and merged into the roof to take the thrust of the cross-arches of the nave. The power of these features is undeniable, but their massiveness also verges upon rudeness, and there seems to have been no structural objection to opening a



ST. AGNES' CHAPEL.

Ninety-second Street, New York City. William A. Potter, Architect.

half-arch that would have relieved this look, without being developed into the complete flying buttress that belongs to a more elaborated construction. The mass of the church is effectively relieved against the expanse of the lower and wider parochial buildings in the rear, where the combination and treatment of material are as admirable as they are throughout. The finest piece of design in the church, however, possibly excepting the tower, is the main front, in which the centre is occupied by a rich and striking piece of architecture in brown stone, flanked and crowned by a plain granite wall. The lower stage of this is a portal of three deep arches very heavily and boldly moulded, and the upper is a large round-arched window flanked on each side by a pair of round-headed "lancets," so incorrectly to speak, while the frieze between the two stages is decorated with the emblems in relief of the four evangelists. Nothing could well be more truly and nobly Romanesque than the treatment of this front. The traceried head of the large window comes down well below the springing of the large arch to a transom at the impost of the smaller flanking arches, and the line of this impost is continued in brown stone as a belting course above another that is produced from the springing of the lower arches of the clere-story ; and the sill course of the great window is also continued across the front, thus thoroughly binding it, and giving the same co-operation of both materials that is secured throughout the building. In this respect the treatment of the building is a distinct advance, not only upon the churches in which Mr. Potter has before used this combination, but upon any of the works in which it was employed by Mr. Richardson. One drawback of detail has been noted in the design of the tracery. Another is the treatment of the porches, in which a column corresponds not only to each moulding of the arch, but to the face of the arch; insomuch that the outermost single column seems to be "in the air" and with nothing to carry. This is a drawback inseparable from the scheme of modeling the faces as well as the jambs into columns. The emergence of the wall itself in a strip of pier at the apex of a cluster of columns is a more logical and satisfactory arrangement, and gives the retreating columns their proper expression of a modeling of the wall of which the face is thus shown. These things do not prevent this front from being one of the finest works of the revival, nor the church itself from being an example of "Richardsonian Romanesque" of which Mr. Richardson himself might have been proud.

Another Romanesque church on the West Side is Christ Church, at the corner of Seventy-first street and the Boulevard, by Mr. C. C. Haight, whose chief successes heretofore have been won in the application of English collegiate Gothic to American collegiate uses, in the admirable buildings he has designed for Columbia College and for the General Theological Seminary. The design for this church is published herewith and it shows a building so different from that actually erected that it is quite possible the architect would object to being judged by the existing building, since the changes are all reductions and seem to have been made in the interest of economy. The drawing shows a massive tower at the angle, which is an integral part of the design, and which has not been built, although it is architecturally necessary and although the construction of it would manifestly relieve the building of the look of hardness and squareness which is its principal defect. The choice of material is not fortunate, a salmon-colored brick being employed in conjunction with a dark-red terra cotta. An error of detail is the introduction of a column attached to the wall of the transept, which is in fact a large roll-moulding and which carries nothing and serves no structural purpose. The church has interesting points of detail, but in any case it scarcely comes within the scope of this article, for, although a recent work in Romanesque, it is not an example of Richardsonian Romanesque, but of Norman, and it might have been built in the same way if neither Mr. Richardson nor the Provençal architects on whose work his was founded had ever lived and labored.

Another church two squares north of this, by Mr. Robertson, is also in a Romanesque, which, though not this time Norman, owes little if anything to the work of Richardson beyond the suggestion of its general style. It is really Romanesque in character as well as in the form of its features and its detail, feature, the four pilasters that divide and flank the three round-arched windows of the gable of the principal front. These pilasters serve no structural purpose whatever, the only purpose they do serve being to sustain the symbols of the four evangelists, carved in relief above them, and apparently introduced



Christ Church N Y

being rugged and massive in treatment, with ample wall spaces. The combination of material is also good, a very red Potsdam sandstone being used, rough-faced, for the body of the wall, and the Belleville brown stone for the wrought work and the features, while the still darker Longmeadow stone is alternated with the Belleville in the arches. The color is everywhere employed with structural propriety, even in those features which are themselves structural improprieties. These are really but one mainly for the sake of giving the pilasters something to do. The whole feature thus formed is obviously amenable to the charge of "constructing decoration" on a large scale and it so far interferes with the effect of naturalness and straightforwardness and reality which is one of the most valuable of architectural qualities and which the general treatment here is very well adapted to secure. It is indeed a survival of the classical Roman mixture of styles from which the Romanesque



architects gradually worked themselves free, and there is less than no reason why a modern architect should revert to the solecisms which his predecessors removed, or even to those which some of his predecessors retained. Another irrational detail this building contains for which it would be difficult to find a precedent in any period of serious and living architecture, and that is the exaggeration given throughout to the entasis of the columns. The Greek entasis was a very delicate curve of which the purpose and the effect was to correct an optical illusion. To carry it further than this purpose requires, so far, indeed, as to call attention to it is to defeat its purpose, and to exaggerate it as is done here is to give the columns to which it is applied an aspect at once clumsy and meaningless. In the Academy of Medicine, a later work of Mr. Robertson's and one which has many interesting points of design, this error is repeated with columns more important and independent than those of this church, and is carried so far as very seriously to impair the effectiveness of the result. Where, as in the present instance, the columns are merely decorative shafts the effect is less injurious, but it is still injurious. It mars the success of the pillared porch which is the main feature of the front and which is otherwise a very rich, spirited and successful feature. Upon the whole, however, the front wall as it is designed is less successful than the flank of the church, in which five bays divide the expanse of rough red wall, pierced in each bay with a three-light opening in aisle wall and another in the wall of the clere-story, the latter, which should obviously enough be the richer, being unfortunately in fact the



· Corner · Seventy-second · St ·
· West · End · Avenue ·

· Lamb and Rich Architects ·

plainer. The lower is a triplet of lintelled openings with a blind arch above the central one, the jambs and mullions being dressed smooth, and the upper three arched openings, of which the central is considerably the tallest, and of which the mullions are rock-faced. A transposition of the treatment would be more effective, or if the treatment of the aisle wall were retained, in the clere-story there might very properly be substituted columns for the rough mullions. Nevertheless, the flank of wall is extremely impressive, the more so for the design of the chapel or lecture-room at the rear against which it is stopped. This is a gabled front, of which the upper stage is pierced with a large triple opening, of which the centre is a round arch, while the lower is projected into an ingenious and novel porch with an arcade of four openings flanked by a gablet at each end.

A more noteworthy example of Mr. Robertson's skill, and, indeed, one of the most admirable works that the Romanesque revival has produced in New York is the Mott Haven Station of the N. Y. C. & H. R. Railroad. A station is a difficult problem to treat without doing violence to its conditions; since the natural outcome of these is but a long low shed of uniform aspect, or with no more variety than can be obtained by distinguishing waiting-rooms and ticket offices and baggage-room. Almost every architect who has tried to do anything with it in a city has been compelled to introduce at least a clock tower to give some dominating feature to the design around which its subordinate and similar features may be grouped so as to constitute an architectural whole. The clock tower appears here, but variety is gained by other devices also. The building is widened at the south end, and this widening enforces a variety in the disposition of the roofs, while an open archway that gives access to the station yard suggests a new motive for the treatment of the front to which it belongs, in a beautiful loggia that surrounds this end of the building and is projected at the centre into a porch. Dwarf round piers sustain massive round arches, themselves rounded so as to continue very nearly the section of the piers, and the impost is marked merely by a moulded string course in terra cotta, while the intrados of the rounded arch is signalized by a row of bullets in carved brick. This treatment would be inapplicable of course to openings that are meant to be glazed, but in free standing and open arches like these it is effective, as the leaving a square arris could not be, and legitimate, as the imitation of stone mouldings in baked clay can not be. The piers that sustain the loggia are of not much more than one diameter in height, and their massiveness adds to the expression of power which is the characteristic of the feature, without degenerating into the rudeness and clumsiness which is the besetting tendency of Romanesque. On the contrary, the front has grace as well as strength, and the carefully and successfully studied composition of this loggia with the large archway that adjoins it, the roof that surmounts it, and the tower that unites and dominates the whole is one of the most harmonious and picturesque groupings that have been effected in our recent architecture. The long side of the station fronting the tracks has been as successfully studied in its way, though it did not present the same opportunity, since it cannot be so well seen and since it is scarcely possible to give a variety that does not look forced to the design of a station platform. What is commonly a very awkward point in such a structure is the junction of the roof of the station with the necessarily flatter roof of the platform, and this awkwardness the architect of the Mott Haven Station has avoided by dropping the lower roof a foot or so from the top of the wall and occupying the interval with a convex frieze of terra cotta, effectively decorated. The clock tower not only unites the fronts of the design by supplying a feature to which they converge, but it is in itself an admirable piece of design—four round piers, produced into round pinnacles and crowned with a simple peaked roof, inclosing the walls, which in the belfry stage are recessed into



MOTT HAVEN RAILROAD STATION, NEW YORK CITY. R. H. Robertson, Architect.

deeply-moulded round arches that contain clock faces, the clock face coming below the springing of the arch, while the interval beneath is filled with a tall colonnade; a disposition that Mr. Potter has repeated in the fine gable window of St. Agnes' Chapel. The charm of these dispositions is enhanced by the characteristic treatment of the detail in baked clay, and by the rich monochrome of the building with only such slight variations in tint as proceed from the difference between the common red brick of the walls, the pressed red brick of the jambs and arches, the red terra cotta of the ornament and the red tile of the roofs.

Among other public or quasi-public buildings that we owe to the Romanesque revival is the Down-Town Club in Pine street, erected from the designs of Mr. Haight, and the only essay of that designer's known to us in Provençal Romanesque, for, as we have seen, his church in the Boulevard is Norman, while the present building is consistently Provençal, with the exception of the entrance, a low three-centred arch of which the form and the detail classify it with the late English Gothic, in which most of its author's successes have been won. This is an incongruity only from a scholastic point of view, however, for the archway goes perfectly with a front of which the detail is Provençal, and the carved and moulded ornament Byzantine. The building constitutes a refreshing oasis in a neighborhood that is nearly blank of architectural interest, being both rational and rhythmical in general composition, especially well studied in detail and fortunate in color, a superstructure of buff brick and buff terra cotta upon a basement of brown stone. Of another very admirable clubhouse, that of the Harlem Club, by Messrs. Lamb & Rich, it can also be said that we owe it to the Romanesque revival, but it can scarcely be said to be in the academic sense an example of Romanesque architecture or to come within the scope of this paper, in spite of the round-headed arcade, of the pairs of round arches under relieving arches in the second story, of the stout colonnade in the gable and of the carved ornament, which is consistently Byzantine and particularly good. Neither can the very interesting and impressive building designed by Mr. C. L. W. Eidlitz for the Racquet Club be described as an "example" of Romanesque. It is, on the contrary, a piece of quite free and modern architecture, for which the architect has taken whatever suggestions seemed to be suitable for his purpose from whatever source he could find them without troubling himself about incongruities that were only scholastic and not æsthetic incongruities, and it exhibits also an individual inventiveness. But nothing could well be more Romanesque in spirit and character, that is to say, in the expression of mass and weight and vigor, than the aspect which is given to this front by the large and powerful arcade of the centre, with its great depth of reveals, inclosed and abutted by the simple and solid frame of the wings.

Romanesque is both a tempting and a difficult style for the design of commercial buildings and it is tempting and difficult for the same reason, that its character is massiveness. "The architecture of rest," Mr. Freeman happily calls it, of immobility, in opposition both to the Grecian which is the architecture of horizontal extension, and to Gothic which is the architecture of vertical extension, of aspiration. Now the practical requirements of our commercial architecture are all opposed to massiveness and disposed to an architecture of extenuation, and much more the current notions that are founded on the popular conception of those requirements, insomuch that an architect who contrives both to light a building abundantly and yet to give it an aspect of massiveness, after achieving this very difficult feat in design is apt to find that he has wasted his labor so far as popular appreciation is concerned, and that the very fact that his building looks strong and solid is taken as a proof that it is not commercial, not "practical." Before the fires of Chicago and Boston it was "practical" to set the front of a warehouse or of an office building on a wall of plate glass, supporting it really on inconspicuous iron columns. Those disasters showed that this was not in fact a practical pro-



MAIN ENTRANCE, MARKET AND FULTON BANK BUILDING,

Fulton Street, New York City. William B. Tubby, Architect.

cedure, while it was the negation of architecture. Nobody could make a work of architectural art out of a front that was lightest at the bottom and heaviest at the top. Since the proof was furnished that a basement of plate glass and iron was not a trustworthy foundation, architects have been permitted to introduce piers of masonry into the lower stories of warehouses and office buildings. Architecturally it is desirable that they should appear as massive as possible, and Romanesque is pre-eminently the architecture of massiveness. Practically it is required that the mass should be reduced to a minimum and an attenuated Romanesque is a contradiction in terms. This is why we say that Romanesque examples suggest to the architects of commercial buildings a problem that is at once very tempting and very difficult, and this is perhaps why the Romanesque revival has been less prevalent in commercial architecture than in buildings of any other type.

Nevertheless, there are examples of it in the recent commercial buildings of New York that are by no means unsuccessful, and that are very full of suggestion. That among them which most distinctly recalls the work of Mr. Richardson is undoubtedly the building in Wall street designed for the United States Trust Company by Mr. R. W. Gibson. Here again the combination of material which Mr. Richardson introduced is employed, but it is scarcely employed with the success which it attained in Mr. Richardson's happiest efforts, a success that has been carried still further, as we have seen, in Mr. Potter's St. Agnes' Church, where the materials are really combined in every part of the work, and where their implication leaves nothing to be desired. It is questionable whether so complete a union could be obtained in the street front of a commercial building of limited dimensions in which the need of the light exacts a very large proportion of voids to solids, especially where the designer has so evidently been taken with the striking effect produced by Mr. Richardson's exaggerations, and has attempted to reproduce that effect in so narrow and so largely lighted a front. Obviously an arcade of dark stone with voussoirs of great depth is one thing when it is set in the midst of an ample field of gray wall, and quite another when it is required to be extended across the whole front and not to exhibit any adequate abutment. This is the case here in the central feature of the building, an arcade running through three stories, of which the magnified arches are in brown stone occupying the whole breadth of the front and thus becoming a distinct stratum of the building. As the central feature of a wide front this arcade might be very successful, but as the whole of a front it is not adequate, and it is scarcely possible, with such a disposition to prevent it from looking like a fragment. The excellence of the building, of which this is the chief motive, must be looked for in the parts rather than in the whole. Such excellences this front displays, and very notably in the basement. This consists, in the lower story, of three bays, of which one is given to the entrance, and this triple disposition is followed in the superstructure, but is interrupted by the upper story of the basement, a colonnade that constitutes a strong horizontal band, of which the effect is to keep down the front and to mitigate the preponderance of the vertical lines and that has its counterpart in the treatment of the stories above the large arcade. The entrance itself is a very vigorous and effective piece of a Romanesque which is here distinctly Norman, a round arch of three orders, heavily moulded and with a corresponding modelling of the jambs into nook shafts which are all the more effective for the emergence between them of the square arris that carries down the line of the arch, and gives a far more emphatic expression of rigidity than can be obtained by the mere succession of columns. In the other arches this vigorous and expressive treatment is abandoned for a reeding of the reveals which is not infrequent in Mr. Richardson's work, but which is enfeebling instead of invigorating, and results in a series of rudimentary capitals that cannot be developed by reason of the huddling of the shafts. This error does

not prevent the lower story from being in itself very successful, while the colonnade above it is a thoroughly admirable and a thoroughly Romanesque piece of design. The columns are clustered over the main piers, not reeded, but sufficiently separated by intervals of wall to admit of the development of their capitals and bases, while between them are pairs of like columns doubled in the depth of the wall, an arrangement more effective than that of a single "mid-wall shaft" and equally Romanesque. The horizontal band thus formed has not the effect of a layer like the large arches above by reason of the discretion with which the materials have here been combined. The story below is entirely of granite and that material reappears here in the shafts of the columns, of which the bases and the capitals are of brown stone, as well as the heavy architrave the columns support. The capitals are distinctly Byzantine and so is the rich carved ornament of the architrave. Both the carving and the modelling are admirably done, and the result is one of the most picturesque "bits" in our street architecture. *O si sic omnia.*

A like partial and modified praise must be bestowed upon another example of what cannot be so strictly described as Romanesque, though it almost equally recalls Mr. Richardson's work, in the building designed by Mr. W. B. Tubby for the Market and Fulton National Bank. Indeed, the best things in the United States Trust Company's building owe least to Mr. Richardson's work, while this has furnished precedents for its shortcomings. The building we are now considering has the Richardsonian stamp given to it mainly by the principal entrance, a deep round arch extending through two stories, of which the spandrils are vigorously framed in a cornice at the top and round mouldings at the sides, stopped upon corbels at the impost, while the jambs below are treated with shafts that are not shafts but merely reedings of the wall. On so small a scale as it is done here this reeding is much less objectionable than on a larger, and the modelling of its cornice into capitals that the space does not permit to be fully developed is notably clever and ingenious. But in this building also the excellences must be looked for in the parts rather than in the whole, mainly by reasons of the designer's insistence upon a corner-tower as the chief motive of his general composition, which does not belong to his building, and is distinctly injurious to its narrow front which is needlessly cramped by the introduction of this feature. The fenestration of the tower above the basement corresponds to that of its flanking walls, and it is thus seen to be merely a capricious variation, and so far does away with the effect of straightforwardness and reality that counts for so much in all architecture and in commercial architecture perhaps more than in any other. If it had been practicable to diminish the number and size of the openings in the tower, and to keep its shaft virtually solid while opening and elaborating its upper stage, it might have lost the look it now has of an attempt to gain a forced and irrelevant variety, though even so it would scarcely have gone with the present treatment of the sides. As it is the look of irrelevancy and caprice is only heightened by the large toruses in brick-work that bound it, and that are themselves proclaimed to be structurally superfluous by being corbelled out above the first story. The parts, however, show very marked ingenuity and an unusual copiousness of architectural resource. The treatment of the basement—the architectural basement, that is to say, comprising the first two stories—is extremely good, in spite of the irrational and unsuccessful substitution, in the springing course of the first story of the convex profile, expanding downwards, that is suitable for a base and expressive of its function, for the concave profile, or at least the profile expanding upwards, that belongs to every member that performs the function of a capital. Apart from this the basement, upon the long side, is admirable, alike in the force of functional expression given to the flat arches of the first story by the disposition of the springers and by the receding moulding of the soffits, and by the design of the range of five spreading arches above with their sturdy piers, their broad



THE MARKET AND FULTON NATIONAL BANK BUILDING,

Fulton Street, New York City. William B. Tubby, Architect.

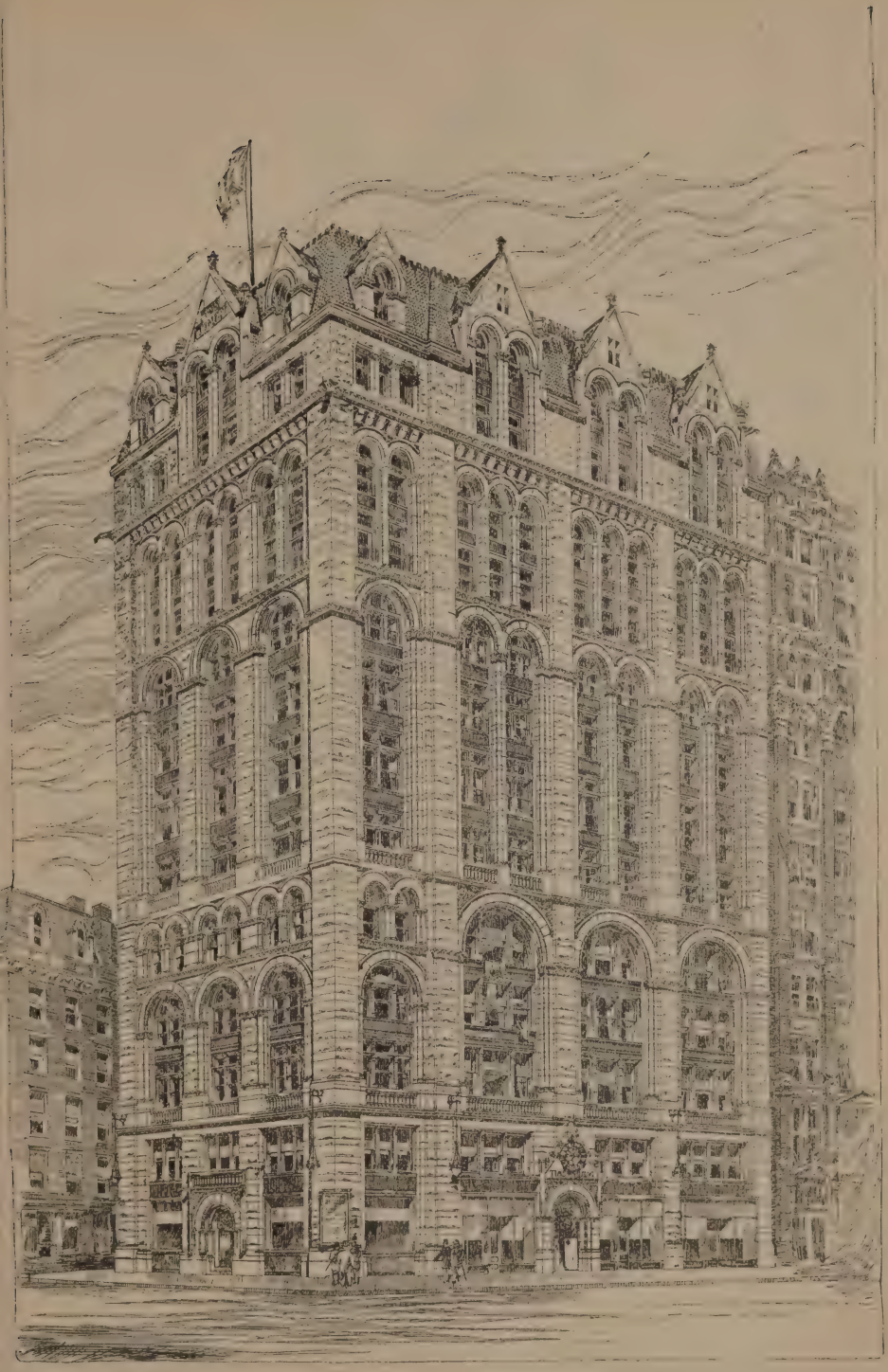
abutments, their deep reveals, and the grace of the ornament even of their springing-course, of which we have censured the form. Ingenuity, indeed, is nowhere lacking, and the treatment of such of the detail is as successful as it is ingenious, notably in the design of the capitals of the upper arcade, and in the lower story of the tower where each front is occupied with a row of slender shafted mullions in brown stone, exceedingly well detailed, and framed between the heavy toruses. Elsewhere the ingenuity alone is obvious as in the device by which a cornice corbelled out in brick-work of slight projection in proportion to its height, is made to comprise a whole story of which the openings occur between the corbels, and by their size neutralize the massiveness the arrangement is meant to secure and which is in fact secured in the tower, where the openings are mere slits. In spite of what we must hold to be a grave error in the composition, the building bears so much evidence of thought and feeling that it is much more interesting than many a building that is more successful.

The building of the Times newspaper is another and a very noteworthy illustration of the adaptation of Romanesque to commercial uses. Among other things it is noteworthy as a new departure on the part of its architect, whose work before it had virtually been confined to one or another phase of the Renaissance. The opportunity presented by the Times building was unusual, and unusual advantage has been taken of it. The building is a trapezoid, free on three sides, of nearly 100 feet on the longer sides converging to a front of 65 that has an unbroken foreground of some seven or eight hundred feet. It is virtually a monochrome of light limestone, for although granite is used in the basement, it is evidently used only because its superior strength is needed. Its tint is as near as may be identical with that of the limestone, and no account is taken in the design of the difference of material, except that the less tractable material is treated with the greater severity. The design throughout is of as great simplicity as is consistent with an architectural composition. The first five stories are the architectural basement, though on the shorter front and in one bay of the longer the fifth is an intermediate story, while throughout the rest of the longer the great round-arched openings are extended through five stories. Doubtless the former treatment is the more eligible. The single story, of coupled round arches between the piers, not only gives a harmonious relation to the larger openings above and below in which several stories are grouped, but it supplies an emphatic horizontal band, which so lofty and many-storied a building urgently needs, and it also furnishes a footing for the central mullions of the upper range of arches, which, where this base is wanting, seem to rest directly upon the crowns of the arches beneath, with an unfortunate and even distressing effect. This is the most unfortunate point of design, indeed, in the longer front of the Times building. For the next most unfortunate, the opening on this front of the main entrance through a pier, the architect cannot be held responsible, and he has dissembled his misfortune with much skill in the design of this entrance and its gable; though it remains a serious misfortune and it is much to be wished that the lower story of one bay should have been reserved for the entrance. Here again the north front has a decided advantage in the adequacy of the entrance, which is the main and almost the only relieving feature of the basement of a commercial building.

The absence of a stronger horizontal banding, and the consequent predominance of the vertical lines, almost to the effacement of the horizontal lines, is the general defect of composition of the Times building. Above the granite basement there are but two continuous horizontal lines, one above the fifth story and one above the eleventh; that is to say, one marking off the lower and one the central division of the fronts, and these lines are quite ineffectual to counteract the emphasis of altitude given by the terminal and the intermediate piers which are continued through eleven stories, and which are, moreover, projected from the plane of the wall so as to have the aspect and to

give the emphasis of applied strips. If the piers had been kept in the plane of the wall, if the intermediate story had been prolonged through the longer front, and if a like feature had been introduced above the upper range of arches, the balance of the horizontal and vertical lines would have been much better preserved. Nevertheless the large 20-foot arches of the basement and the divided arches above them are very impressive features, and their impressiveness is greatly heightened by the character of the detail, which is nowhere exaggerated in the Richardsonian manner, but takes its place properly and is almost everywhere carefully and successfully adjusted to its place in scale as well as in treatment. One exception to this occurs in the treatment of the gabled dormers, where the designer has omitted to allow for the violent foreshortening they would undergo when seen from below and where the gargoyles and the finials of the lateral piers of the dormers are confused into shapeless masses. In spite of this the roof, with its two-story dormers relieved against the plain and comparatively solid parapet, is the most successful part of the design, and our architecture has few things more spirited and picturesque than the disposition and the design of this upper division, or more piquant than the skyline thus animated without being disturbed.

The Union Trust Company, a later work by the author of the Times building, is not only a more successful work, but it is very particularly instructive in the advance it shows upon the earlier design. It is unfortunately rather the rule in our very irresponsible and licentious way of practising architecture, that an architect who is dissatisfied with the effect of his work in execution, as every artistic architect who is not blinded by self-conceit must more or less be, instead of really considering the cause of his shortcomings, abandons the motive from which the unsatisfactory work was developed, and he is very apt even to abandon the style. Already in this paper there has been afforded an illustration of the more rational process in the decided advance made by Mr. Potter, in the design of St. Agnes' chapel, upon the treatment of his combination of material in the church of the Holy Trinity. Mr. Post's work in the Union Trust Company's building shows the same kind of advance upon his work in the Times building. The motive of the later work is essentially the motive of the north front of the Times building, but every one of the criticisms we have been passing upon the latter has been made by the architect upon his own work, and every one of them has been obviated. This building has the architectural advantage, as compared with the other, that it is two stories lower; it has the disadvantage that it is merely a front. The basement here is of four stories, but one of them is partly sunken, so that it scarcely counts, and the central division of five stories becomes without question the predominant mass, whereas in the earlier work there is an annoying confusion as to which of the three main members of the composition is the principal. The piers are produced to the springing of the arches of their upper division so that here also the vertical lines predominate ; but here their preponderance does not prevent a harmonious relation of vertical and horizontal lines, since not only is the intermediate story of the Times building—the coupled arches between the piers—reproduced above the basement, but another intermediate story is introduced between the central and the upper division, and this story disregards the division into bays between the piers, being a continuous arcade of openings equally spaced, and thus forms a still more emphatic horizontal belt, accentuated by decorated courses above and below and performing perfectly the function of an intermediary between the central and the upper division, the third term of the proportion, which is the steep and lofty roof against which three gabled dormers are relieved, the central, the largest, recalling again the division of the main front into three bays. The faces of the piers are here in the plane of the wall, indeed they constitute the wall, and the whole composition distinctly improves upon its



THE NEW YORK TIMES BUILDING, George B. Post, Architect.



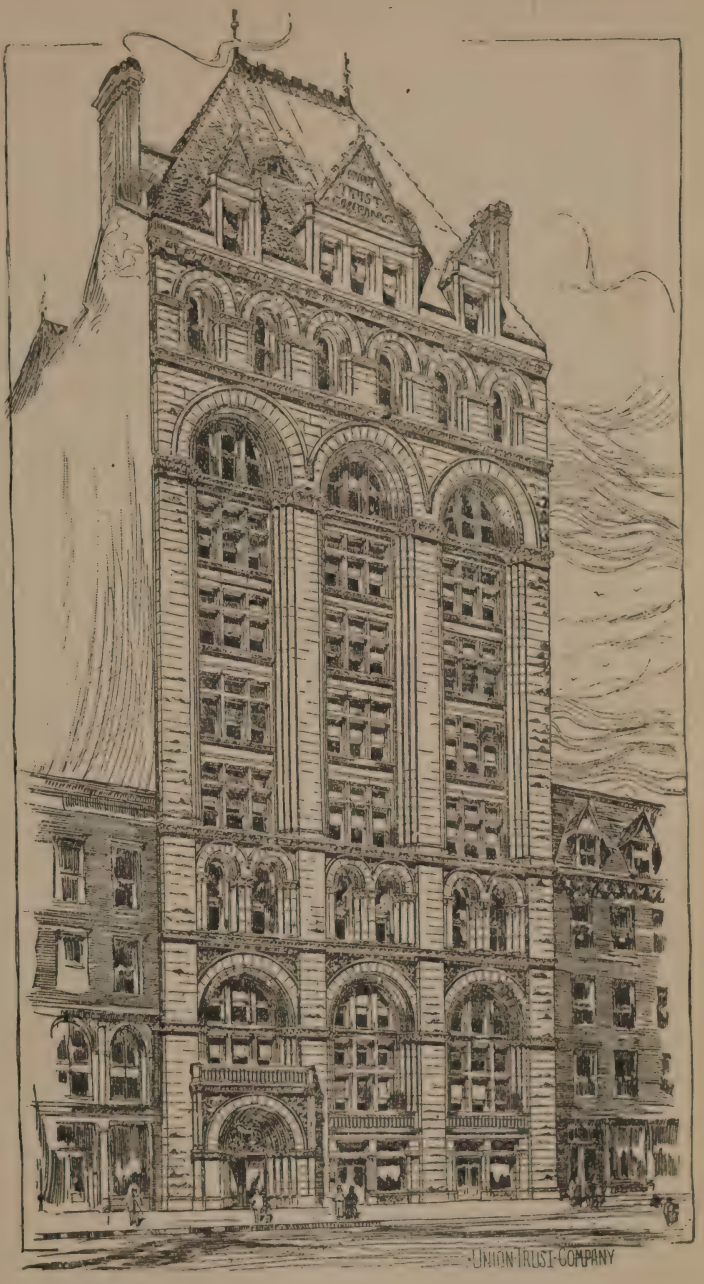
RESIDENCE,

848 Fifth Avenue, New York City. Charles C. Haight, Architect.

prototype in simplicity, intelligibility and power, and the improvement is continued in the detail, which, good as it is in the Times building, is here distinctly better. The rear of the building is architecturally not less important than the front, while it is very much more picturesque, not merely because the motive of the granite front is here carried out, with the necessary modifications, in buff brick and buff terra cotta, but also because the narrowness of New street and its sharp decline give the towering structure a much greater impressiveness, and one comes upon it with a glad surprise. It is questionable whether the Union Trust Company be not the very best commercial building to which the elevator has given use in New York ; and it is not questionable that it is an admirable piece of design which fully indicates the applicability of Romanesque to commercial uses.

To select typical dwellings from the work of the Romanesque revival is

difficult, mainly by reason of the embarrassment of choice, but also in part because even less in dwellings than in other works are our architects accustomed to consult purity of style. One may find Romanesque features in countless houses that cannot be described as examples of Romanesque. Perhaps the houses are none the worse for this, but it is nevertheless true that while the influence of Richardson may be seen in a great part of the recent domestic architecture of New York, especially upon the West Side, there are comparatively few houses which an archæologist would allow to have been designed in Provençal Romanesque. Byzantine carving, it is quite true, pervades many fronts that are otherwise without any tokens of having been inspired by any historical style. A house of Mr. Robertson's in East Seventy-first street, in pinkish stone and pinkish terra cotta, is Romanesque rather in general character and in massiveness than in form and detail. Perhaps the same may be said of a large house at Fifth avenue and Sixty-sixth street, designed by Mr. Haight, which is of a rudimentary and still highly classic Romanesque in the upper two of its three stories where the triple openings of the recessed centre of the main front are flanked and separated by com-



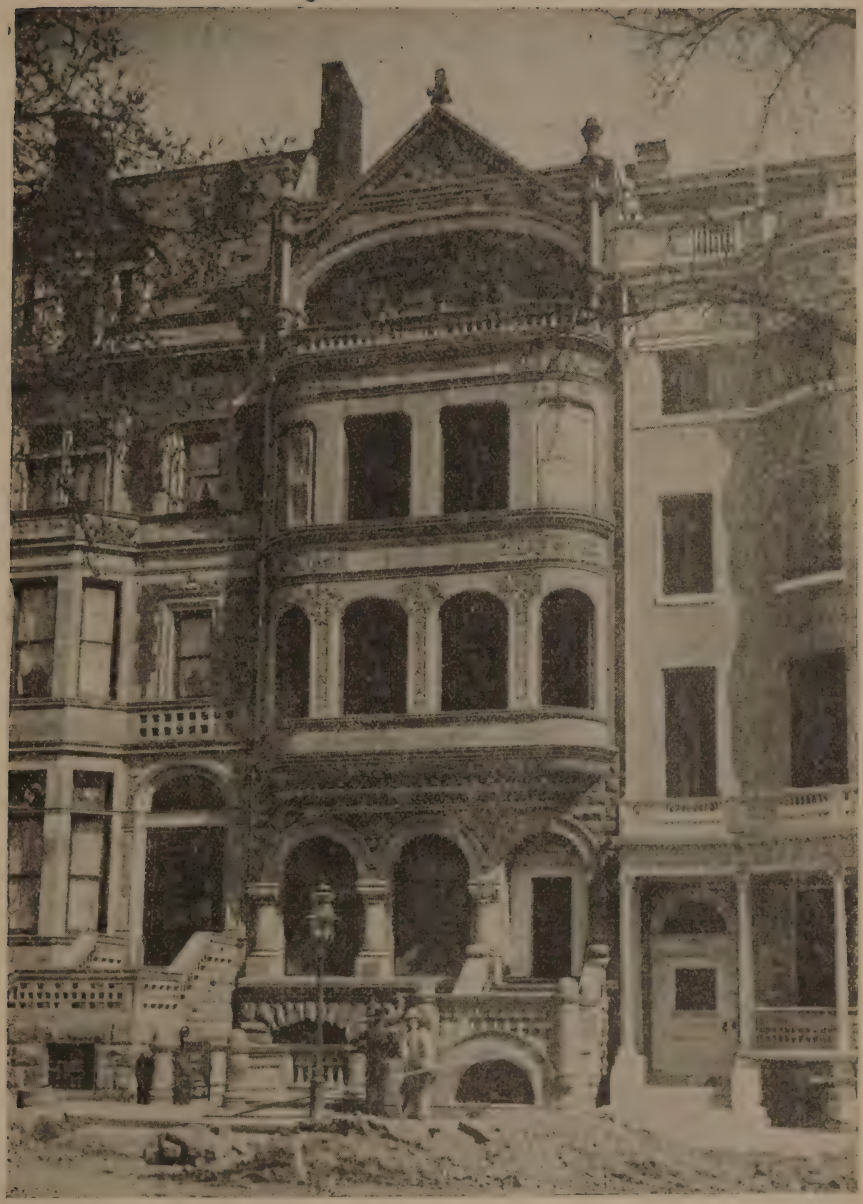
THE UNION TRUST COMPANY'S BUILDING,

Broadway, New York City. Geo. B. Post, Architect.

pletely developed and projected classic columns, which are rather less like Romanesque than like the free classic of the French Renaissance, of which the house is surely not an example. The only specific reminiscence of Romanesque is in the round-arched openings of the ground floor, and yet the massiveness and severity of the whole treatment undoubtedly recall the style. The design testifies to the architect's conviction, which is also that of a good many other people, that at present distinction in our domestic architecture can be attained in no other wise so surely as by extreme plainness, and the result of his labors tends to justify him, for the simple massing, the large unbroken wall spaces of rough granite, the severity of the treatment of the openings and the very sparing use of ornament give the house individuality and character, though it may be questioned whether this character is domestic. The narrow front of No. 844 Fifth avenue, on the other hand, is plainly intended as an example of Romanesque. The design here is simplified to the utmost, the front consisting merely of a bowed and corbelled oriel of two stories, with emphatic moulded string courses that mark the sills and floor lines, set upon a triplet of sturdy round arches, and surmounted with a balcony in turn crowned and screened with a low gable. With the ordinary street front, nothing is so fatal as a multiplicity of features, and the designer of this front has done wisely to make one feature of the whole. But it shows the defect of its quality of simplicity and massiveness in a certain rudeness and clumsiness that is not relieved by the surface ornament.

Perhaps this drawback may be alleged also against the complete success of a group of undeniably and consciously Romanesque dwellings at Seventy-second street and West End avenue, by Messrs. Lamb and Rich. These are distinctly Provençal and even distinctly Richardsonian in some details, such as the introduction of mosaic in the spandrils of the arches at the corner, and in the color treatment of the fronts generally. This color-treatment, indeed, is the most striking and the most successful element of the design, an olive sandstone being employed in effective combination with a reddish sandstone that much enhances its value. The design is not however without other elements of interest. The general composition is highly effective, individualizing the houses without destroying the unity of the group, and the massiveness proper to the style does not often degenerate into the clumsiness which is its besetting tendency. It may be said to do so in the large and structurally unmeaning rolls that are corbelled out of the angles of a triangular bay, and that have scarcely any other function than to designate the style. On the other hand, the design of the shallow corbelled bays of two stories, crowned by hip roofs, is extremely happy, and these features are very much more effective in fact than they appear in the illustration, as indeed may be said of the whole design, in the success of which the successful employment of color bears so large a part.

It is fortunate that the building thus far done along the Riverside Drive has sufficed to commit that boulevard to a suburban rather than a strictly urban character. It is especially fortunate since among the villas already erected, which are for the most part decorous and dull, with one or two exceptions which are highly indecorous and even duller, it has given opportunity to Mr. Freeman to put up two villas, on the opposite corners of One Hundred and Eighth street, which are not only by far the most artistic examples of the Richardsonian Romanesque in our domestic architecture, but are among the most artistic of our dwellings in any style. Without being grouped, each enhances the effect of the other. In the older and the northernmore, a basement and first story of light gray sandstone, bordered and enriched with brown stone of two tints, carries a second story of brown brick nearly matching the darker of the brown stones and rising into a tower and gables that form a third half-story and that are relieved against a pyramidal roof of red tiles. The rich, deep archway that forms, after the tower, the main feature of the main

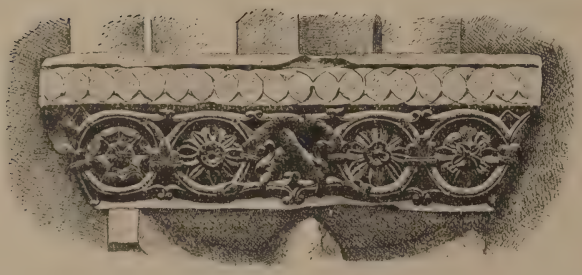


RESIDENCE, NO. 844 FIFTH AVENUE, NEW YORK CITY.

front is unmistakably Romanesque as, indeed, is all the detail, into which the spirit and the careful adjustment of the general design are everywhere carried. In the other and newer house walls of yellow brick are inclosed and relieved in rich red sandstone, while the building is roofed with varnished black tile. The charm of color is equal to that of the older house and the attractiveness of the design as well. The clever and characteristic use of sheet metal in the balconies is a detail worthy of remark, as, indeed, is all the detail, in whatever material. The general composition, of which the motive is the pyramidization of the whole mass to the apex of the crowning roof with the tall arcade of the large tower, and the grouping formed with this by the turret at the angle and the chimney that adjoins it are admirably conceived and admirably executed.

This review does not pretend to exhaust the interesting works of the Romanesque revival, but I think it includes the most typical of them. It will be seen from it that Romanesque architecture, in the Norman, the German and the Provençal phases of it, constitutes an architectural language that is applicable to all our needs, for there is no mode of building, from the ecclesiastical to the domestic, in which we have not already successful examples of it to show, and in which we may not hope for still more signal successes in the future. It has not been conventionalized or formalized so as no longer to be expressive, but is still free and flexible, and it affords ample opportunity for a designer to manifest his scholarship and his individuality, if he have any. So much cannot be said of any previous style that has come so near to establishing itself. It is to be hoped that our designers may be content to develop its resources and not be tempted to abandon it, as so many promising beginnings have been abandoned in the history of modern architecture, through an unlucky and disastrous caprice.

Montgomery Schuyler.



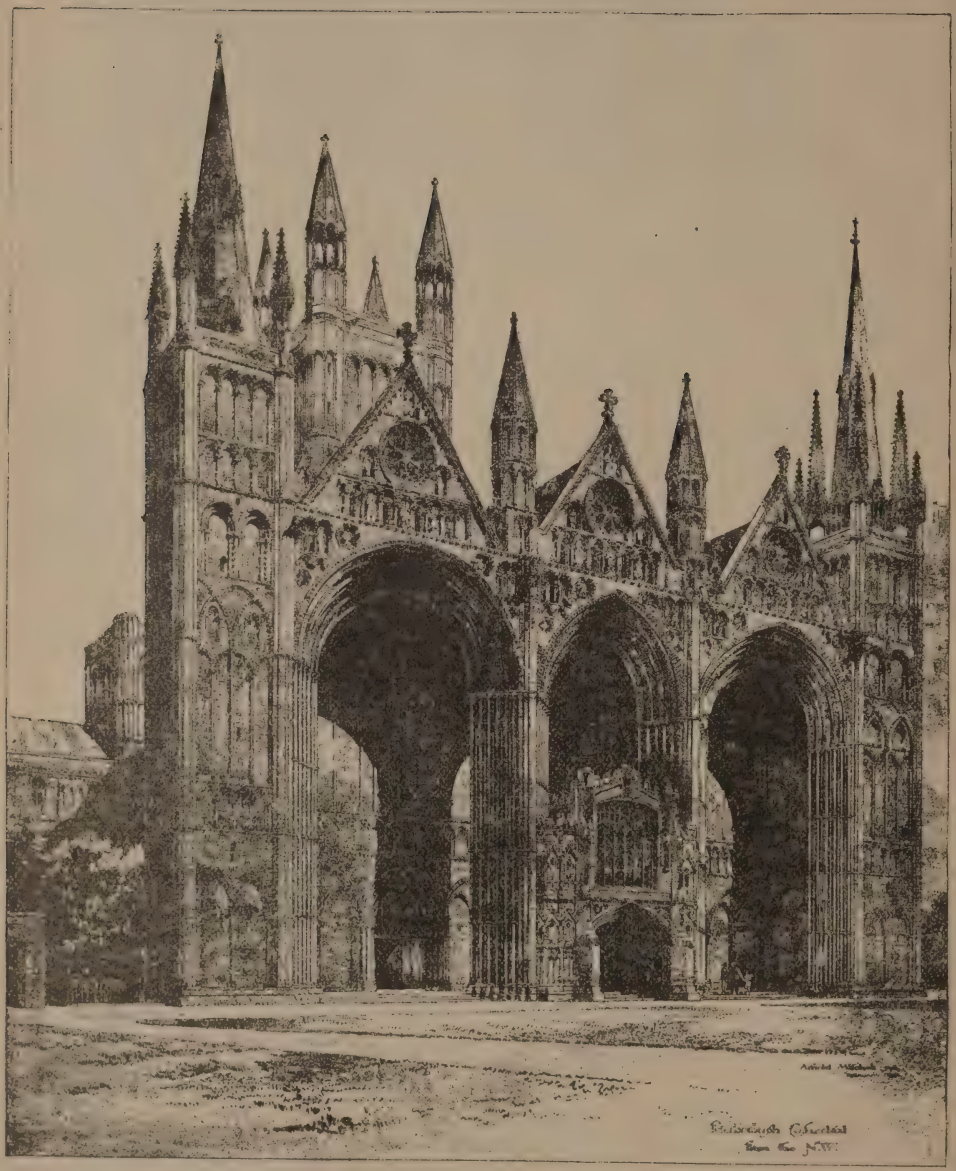
AN "AMERICAN STYLE" OF ARCHITECTURE.

WITH us, one of the most popular of modern architectural ideas is that there will some day be devised a truly original American style. Seldom has the popular mind made a greater error, or so openly expressed its ignorance of what Architecture really is, and of the conditions under which it is evolved. Architecture is not an article of manufacture that can be produced on demand. It is one of the things not affected by "supply and demand." We produce buildings, it is true, but few of our most pretentious attempts can be viewed with favor by the advocate of the "American style."

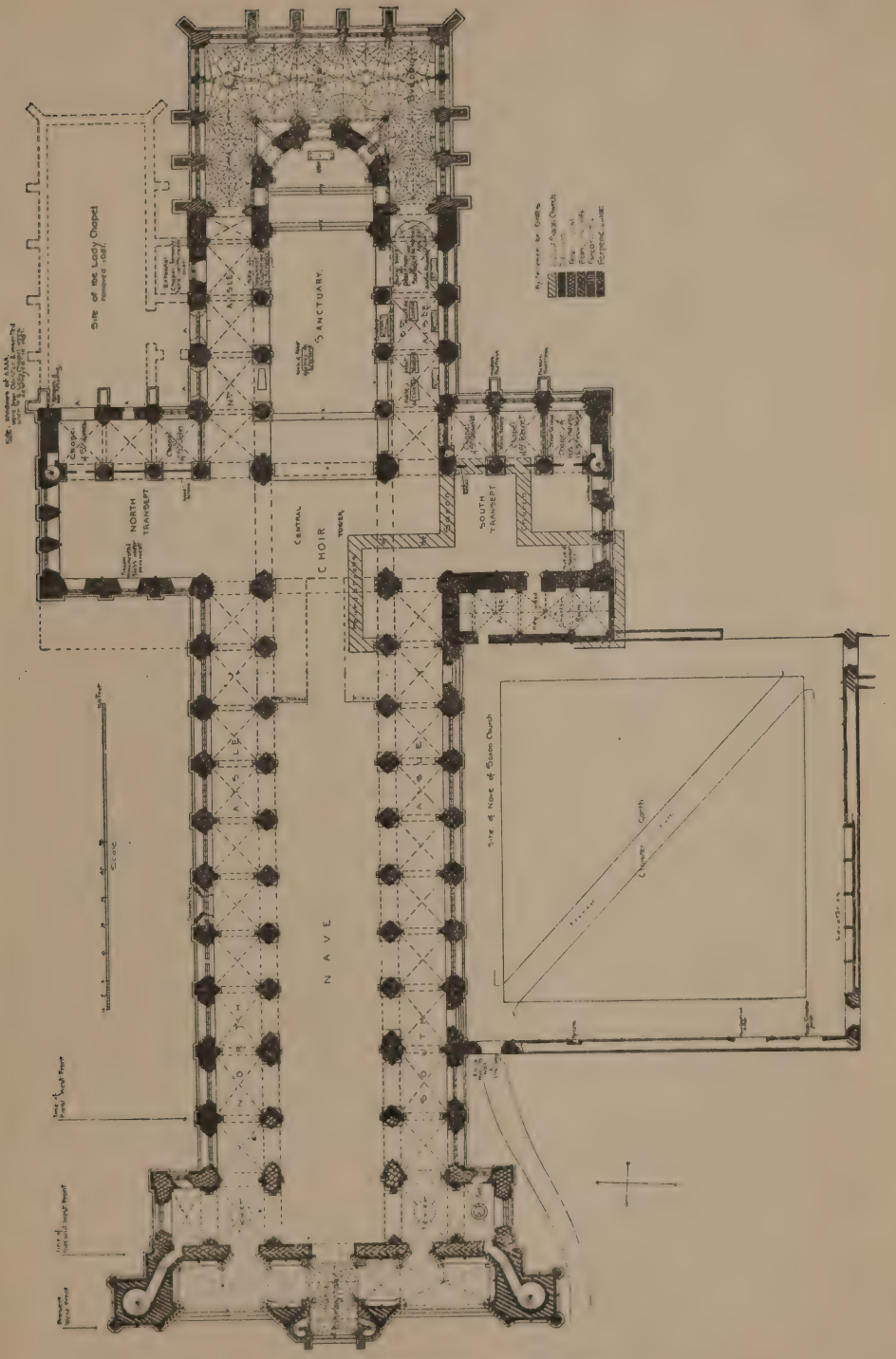
The study of the history of Architecture shows in the most positive manner that the great historical styles—which it is fondly hoped the American will surpass—are the products of natural evolution spread over centuries of time; and are the resultants of the action of very many causes. In one sense their existence is as natural as that of a plant or of an animal. Many attempts have been made to deliberately design an American style of architecture by devising certain ornamental details without undertaking to introduce a principle distinctively American. All, however, rest on the error of supposing that a style of Architecture is something that can be designed or drawn to order on a sheet of paper, much as a client would order his architect to prepare a drawing for a house in some special style. No architectural style originated in such a hypothetical fashion in the past, and amazing as is the fertility of American invention, there is no reason to suppose it can overcome the operation of a law of nature by such a method.

Architectural styles follow national boundaries very closely. National or ethnographic qualities are among the most important phenomena that have influenced their development. As a nation we are totally without the ethnographic unity which is essential to the production of an original art. A people composed of English, French, Germans, Italians, Spaniards, Russians, Austrians, Hungarians, Danes, Swedes, Norwegians, Poles, Turks, Armenians, Portuguese, Greeks, black, white and Mongol, Christians, heathen, infidel, cannot assimulate such diverse elements without many years of intermixture and solidification. We have ideas that are representatively American; we have American customs and methods, none of which can be mistaken for anything else, but we have not that quality which will give us an architecture of our own.

Then again, were there no ethnographic conditions; if the history of art



THE WEST FRONT OF PETERBOROUGH CATHEDRAL.



PLAN, PETERBOROUGH CATHEDRAL.

did not expressly declare it to be something that cannot be made to order as a coat or a pair of trousers, our geographical and climatic conditions would render it impossible. Our country embraces a larger area than that occupied by any other civilized people under a single government. The British Empire is a confederacy in which each colony is permitted a large measure of political freedom without reference to the mother country; a great part of the Russian Empire is inhabited by semi-barbaric tribes, leaving us quite alone with the largest territory, for which it is proposed to devise a typical form of building. No proposition could be more absurd.

Our land is of such extent, it covers so many degrees of latitude and longitude that it would be impossible to impress any one style of architecture upon it, except by law or the arbitrary caprice of fashion. An architecture which would be suited to the semi-tropical climate of Florida would be totally out of place in the cold, bleak temperature of Maine. The salubrious climate of California requires a very different kind of dwelling from that adapted to the hot summers and cold winters of Pennsylvania and New York. But difference in temperature alone is not the only natural argument against the much-longed-for American style. Rainfall, the diversity of our products, the wealth of our resources, the very elements of our greatness themselves are sufficient reasons why we cannot have a national style of Architecture.

For, if we could, what section, what temperature, what climate, what products shall be taken as thoroughly and representatively national? Shall the East or the West, the North or the South claim the priority, and impose customs and methods on regions to which they are unsuited? Shall we take an average section without especially marked natural features, such as surrounds New York, or shall we select some remarkable and noteworthy district as California and the Yellowstone National Park as the typical American region? Carried to its logical conclusion, the selection of any one of these would end in a catastrophe scarcely less momentous than that which convulsed the nation on the slavery question. People in the South would find it impossible to live comfortably in a dwelling built for the North, and the man of Maine and the man of Texas would forget their difference on the tariff in endeavoring to make themselves comfortable in houses that bore no relation to the climatic conditions of their respective homes. The question is not one of the local pride, of the prevalency of wealth or of culture, but purely a matter of climate. It would be quite as sensible to insist that every man, woman or child in the United States should wear the same kind and amount of clothing, of the same material and make, as to argue for a national architecture.

The geographical limitations of Architecture form a very interesting study. All the great styles originated in comparatively small states, and among people who inhabited a country of fairly uniform nature. The concentration of energy caused by the confining of intellectual growth to the relatively small areas of the old world was a powerful factor in the evolution of architectural styles. It may not be altogether true that the smaller the area the more developed the architecture, but it is somewhat significant that the most perfect of all styles was produced in Greece, one of the smallest of countries, and in Athens, one of the smallest of Greek states. People have fewer things to think about in a small country than in a large one, and objects directly under their observation acquire a relatively greater importance through the want of variety of ideas and occupations.

With us it is very different. Our vast territory, our multifarious products, our mixture of races and nationalities, our diverse interests, our varied climate and our inexhaustible resources render it altogether impossible for us to hope to evolve a genuine and national style of Architecture, even if the question were one that admitted of deliberate evolution or could be seriously and carefully considered. The blending power of time and the absorption into one family of the many people who now form



PAIR OF GATES. G. Aitchison, A.R.A. Architect.



Bruce Price
Archt. 1887

COUNTRY RESIDENCE.

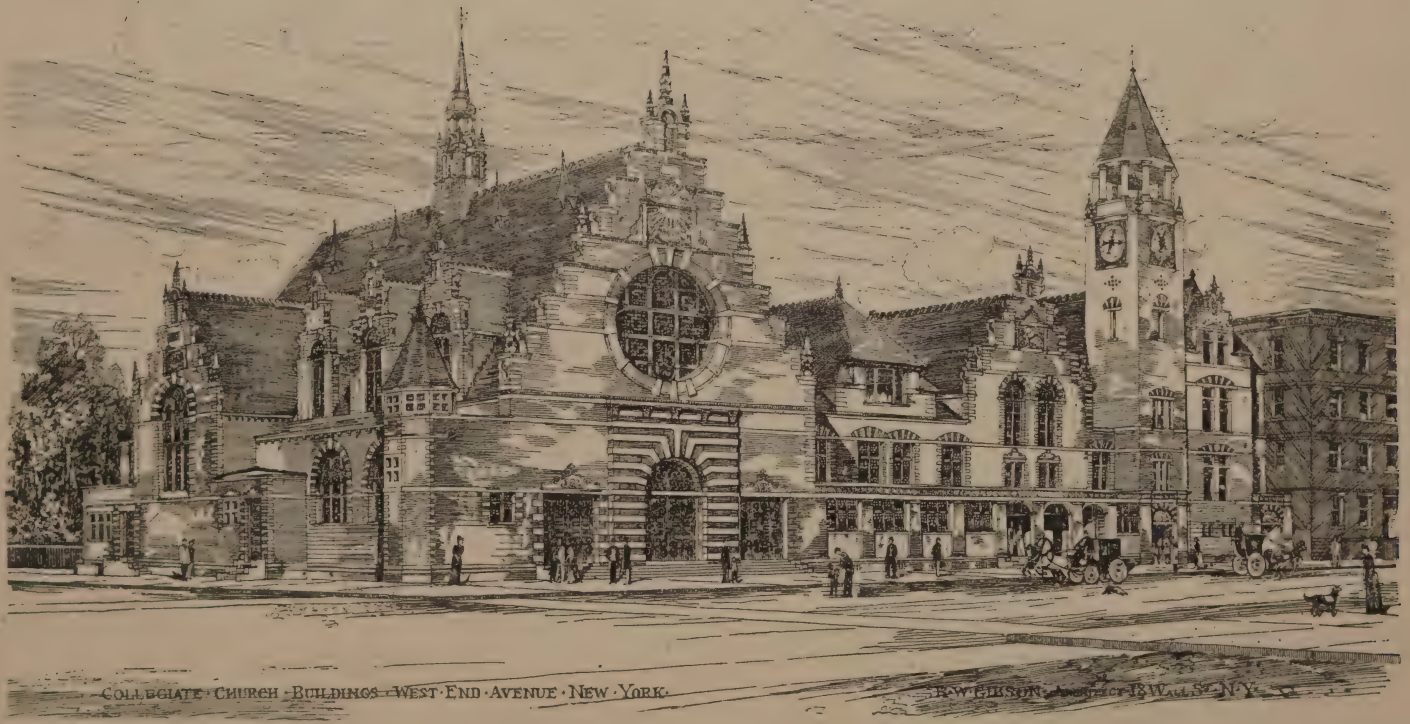
our nation may possibly do something towards bringing about the realization of the popular dream, but at so remote a period as not to be worth taking into account. In this age of active inventive resource and discovery no prophet is more discredited than he who announces that such and such a thing cannot possibly be done, but the conditions under which architectural styles have been developed in the past are so obvious and definite that were it not for some unfortunate attempts to accomplish the impossible, it would seem incredible that sensible people should sit down before a drawing-board to produce a new, original, genuine, and withal American style of architecture by means of a compass and a T-square.

Though the American architect may not devise a style that shall be exclusively his own and bring him enduring and world-wide fame, he is not reduced to blindly copying buildings of past time, nor has he cause to be dissatisfied with the methods under which they were evolved. A system of architectural growth which produced the great temples of Egypt, the palaces of Assyria, the sanctuaries of Greece, the vast baths of the Romans, the dome of St. Sophia, the rich rugged beauty of the western basilicas, the sturdiness of the Romanesque, the unparalleled grandeur of the Gothic cathedrals and the innumerable ramifications of Gothic art, and the sometimes debased forms of the Renaissance, cannot be looked upon as a method that is old-fashioned and out of date, useless or forgotten, antique or incompatible with modern ideas. Not all previous architecture is worthy of being copied, but that of it which is, possesses such surpassing qualities of greatness and truth that no modern architect need be ashamed to use them as models. If he produces anything half so honest and good he will be doing well.

But it is quite unnecessary that the modern architect should resolve himself into a copying machine with no more individuality than a hektograph. It is as great an error to suppose that because we cannot have an American style we must unquestionably follow other people, as it is to search for this style. The great problem before the American architect is to mould architectural ideas and forms to the varied conditions of our national life and situation, and thus while not obtaining an architecture that may be American in outward aspect, will be American in purport and through adoption. He will not insist on the selection of one style and one plan for the whole of our vast area and our wonderfully diversified climate, but he will permit each section to solve its own problem in its own way. These conditions are of course indefinite, but not more so than the problem itself.

Throughout history the human mind exhibits points of similarity of startling distinctness; the longing for the unobtainable is one of the most persistent characteristics of the race. This feeling has undoubtedly at times brought about the invention of many desirable things, but it is not always the sensible and the useful that humanity craves. In the Middle Ages the philosopher's stone, which should turn all things into gold, was at once the most popular and absurd of superstitions. When the history of ideas in this country in the nineteenth century shall be written, the invention of an "American style" of Architecture will be pointed out as an illustration of the same delusion which animated people in the Middle Ages concerning the philosopher's stone. And just as we moralize on the nonsense of the gold-converting substance, so will future artists wonder that sensible, educated, wide-awake people should have imagined they could produce a style of Architecture by deliberately drawing it. It is not flattering to our good sense that we should be so thought of, but it is not more comfortable to see the making of styles attempted under our eyes and encouraged and applauded by those who should know better.

Barr Ferre.


COLLEGIATE CHURCH BUILDINGS WEST END AVENUE NEW YORK.
R.W. GIBSON ARCHT 13 WALL ST. N.Y.



THE PIPES OF PAN.

UPON his melancholy pipes
Pan played until the wood was filled,
Until the evening breezes died,
Until all evening sounds were stilled.

When he ceased the woodman prayed,
"Let me behold thy pipes, O Pan,
Let me behold, that I may make
Such pipes to play on if I can."

For days he sought the finest reeds
Of all within the watery glade,
And fashioned them like those of Pan
Until the instrument was made.

He overwrought the pipes with praise
And pictures of the quiet wood,
Where nothing but the golden light
Broke in upon the solitude.

One evening when the quiet thrilled
With whisperings from the dying day,
And clouds of glory filled the West,
He took his pipes and tried to play;

But, from the pipes of perfect form,
No music rose to fill the wood,
No voice gave answer to his song
Or broke the evening solitude.

"Are not these pipes like those of Pan
Whose melody is passing sweet,
More liquid than the moonlight song
That riseth where the waters meet?

"Are not these pipes, in size and form,
Like unto those from which I wrought?
I have not failed in one poor thing;
Oh what has brought my work to naught!"

From out the wood, as thus he spoke,
Came music far too sweet for man:
The woodman bowed his head; he knew
His song was in the pipes of Pan.

Harry W. Desmond.



DESIGN FOR RESIDENCE, Oskar Dedreux, Architect, Ausburg.



FADS IN ARCHITECTURE.

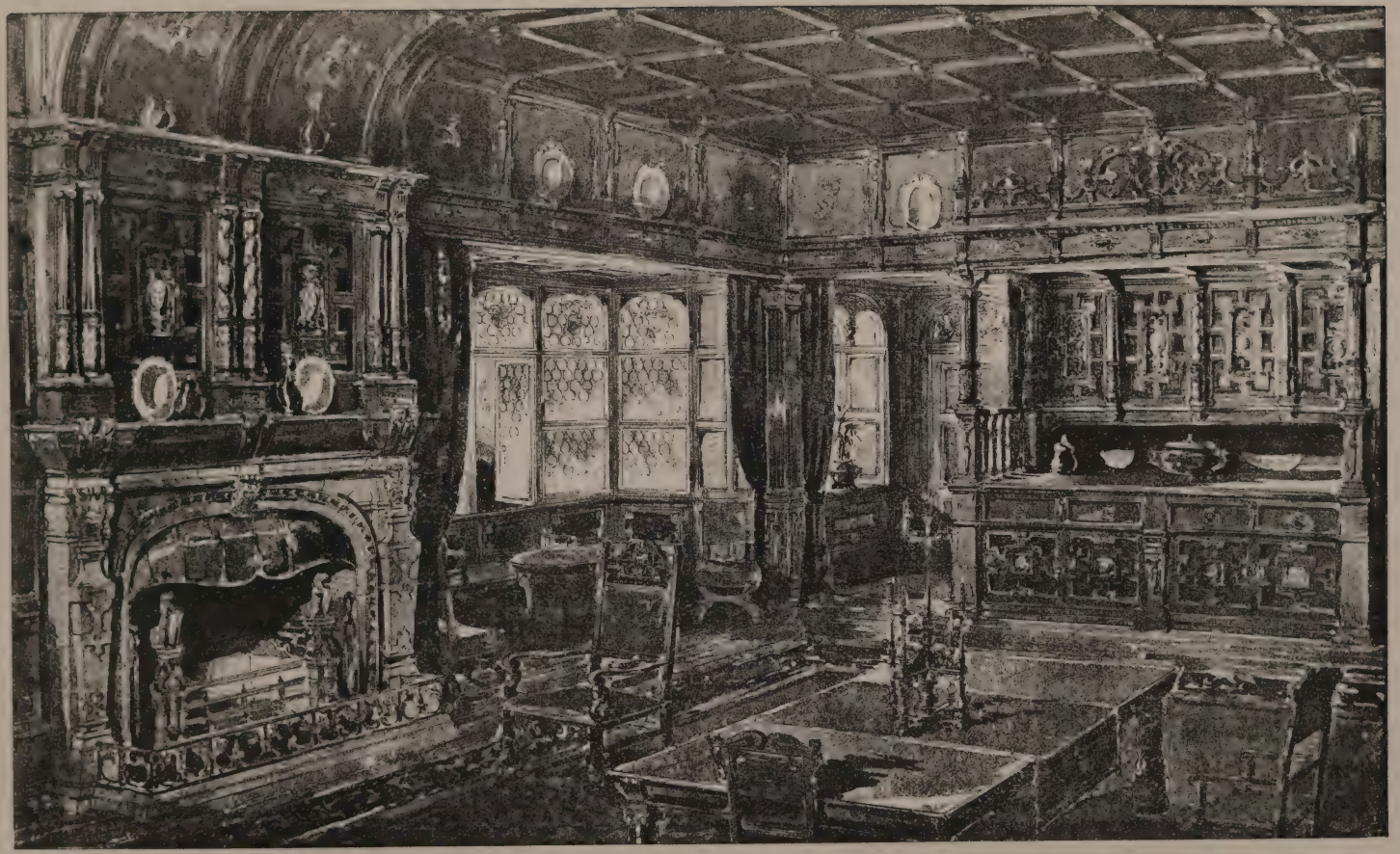
THE meaning conveyed by the words Architect and Architecture is fast becoming more distinctly understood. Webster defines "Architect:" (1) One who plans and superintends the construction of a building; (2) A contriver. The most commonly accepted meaning would be expressed by a part of the first: one who plans buildings; while too much of the practice has followed the second. To-day the intelligent public would add to Webster's first definition, and say: an architect is one who designs, plans and superintends the construction of buildings, monuments and the like in an architectural way; that is in a scientific and artistic way—so that to us, an Architect not only plans or, as in the second case, "contrives," but plans, designs and constructs buildings in an economic, scientific and artistic manner.

There is a prevalent notion that to be architectural means that the subject must be treated in one of the many so-called styles of architecture, but this is an error; the different styles are not so distinctly separated that a composition may not have the characteristics of two or more styles; nor are they so essential that a composition must have the elements of one or more to be scientific, artistic, and hence architectural. On the other hand, a composition could have the elements of the most clearly defined style, and even the details of the best example of the style, and be far from architectural.

It is upon this stumbling block that so many of our practitioners wreck their golden opportunities, and, assisted by the casual observations and needs of their clients, create the architectural fads and fancies of the day.



GAS CHANDELIER,
Designed by the Edison Electric Light Co.



From the Royal Academy Exhibition, London. DESIGN FOR A DINING ROOM. J. Armstrong Stenhouse.



Garfield Place, Brooklyn, N. Y. HALLWAY, RESIDENCE OF R. A. WARD, ESQ. Charles P. H. Gilbert, Architect.

The profession in general have attempted, and still attempt, to follow out some of the recognized styles in each design where, hampered by inconsistencies and influenced by the promptings of clients, the results are the incongruities which surrounded us. The public who are their clients are influenced by the more conspicuous and ornate attempts, and besiege the Architect to have a similar design and arrangement carried out in their work, and unfortunately too many architects follow such a course as the easiest way to dispose of the case. Thus there is too little serious work.

his purpose to do the so-called "original" act, but to best serve his clients, himself and his art by using that which is well adapted, and strive to do better that which is not, whether that which he invents follows the precedence of style or not.

The serious men of the profession, who have by natural capacity, training and sturdy application met every problem face to face have left illuminated pages in the history of the profession, but behind them have followed a long line that ape them in the style which they have created or improved by their inventions. Thus it is, for each good

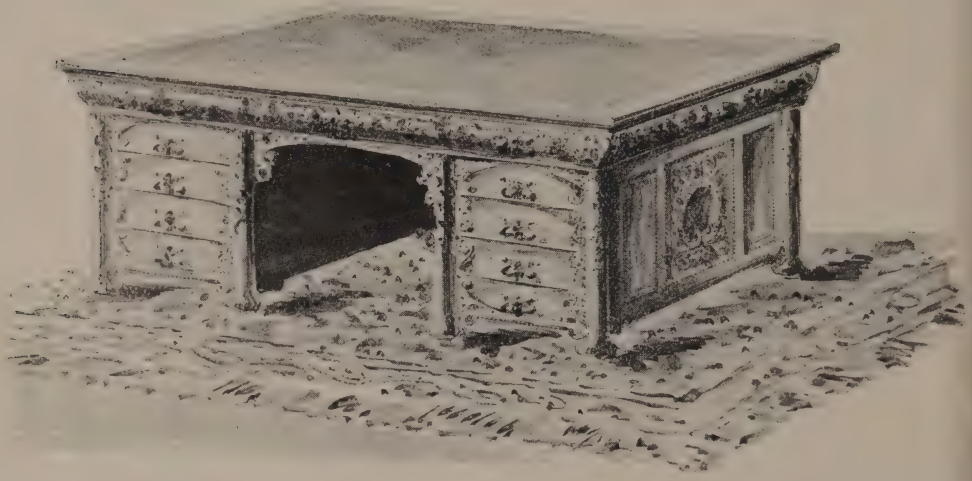


TABLE DESIGNED FOR THE NEW YORK CITY MUNICIPALITY. Herts Brothers.

The true Architect is no copyist, no stiff-thumbed duplicator of other's details and ideas, but he who carefully studies the needs of the case before him, and plans, constructs and designs from a conviction that arises not so much from genius as from study and intelligent training, a kind of architectural conscience that abhors as a deformity, superfluous, misapplied or misplaced materials and inartistic lines and colors.

The Architect should not permit himself to be hampered with old or new examples, although he must be entirely familiar with both, and not hesitate to introduce as much of one or both as may best serve his needs. It is not to

design, we have countless imitations; seldom of the whole but of contorted details of it, so that every successful or partially successful man that does a good thing becomes the leader in or the instigator of a fad or a fashion to do everything in this or that way, after this or that style, consequently we find a constant changing of styles, a commencing over from a new starting point, a complete arresting of the progress made, instead of a steady development. It has been but a few years since it would have been considered a folly to have designed a prominent building in any but the Gothic style, and certainly to-day it is as foolish to think of having accepted a design in that style. The



New Brunswick, N. J. INTERIOR OF RESIDENCE OF PROF. C. E. HART. Henry Rutgers Marshall, Architect.



Buffalo, New York. ENTRANCE TO LIBRARY AND ART BUILDING, Cyrus L. W. Eidlitz, Architect.



ELECTRIC CHANDELIER, DESIGNED BY THE EDISON ELECTRIC LIGHT CO.

Romanesque of Mr. H. H. Richardson became the leading fad of the hour, until every office boy in the land, every stone-cutter and carver prided himself in his ability to copy him—not to avoid his faults, not to detect a weakness here or there, but to copy him. The fact was overlooked that Mr. Richardson did not reproduce what he found, but developed it to meet the case, not trim to fit the place but invent what was necessary to make a complete whole. Has any one equalled or approached him? and now this fad is slowly but surely dying out. To-day we must either "do" the Renaissance or be out of fashion.

Yes, back to the Renaissance—



Los Angeles, Cal. COURT HOUSE. Curlett, Eisen and Cuthbertson, Architects.



ANCIENT CORINTHIAN VASE IN TERRA COTTA.

largely a something like everything else. It seems quite natural that after a cruise around among the styles and fashions we should come back again to the style that has received the highest development. But why come back we would like to ask? and the obvious answer is, because some ornate and prominent buildings have been built in this style, and the public are saying, how beautiful; how successful; why can you not do likewise for us? and these questions outweigh all others. Take for example the great cornice courses, those miserable shams that stand between you and the light, that stretch out their great backs to catch the dirt only to pour it down upon the walls below when it rains, and divide up the façade like so many slices of cheese; are they not ill adapted to a twelve-story building on a 25-foot lot? Certainly no one will say these are essential to anything but this particular style; then why endure them? The same question may be asked of many other details of the style.

As with the general fashions that extend over the whole country, so with local fads that take possession of



Designed by Edison Electric Light Co.

cities or districts. Someone reproduces a "Colonial" design which is approved of and at once everything becomes Colonial, or perchance it is Louis XIV. or XV., or, as now in New York, Francis I. When will this apeing come to an end? When will we have men that lead to a purpose and men who follow to take up the work where the first lays it down, and push it on? Not until then will we have a National style; a style that will become a people advanced in science and schooled in art.

There have been a number of educated men in the profession whose work during the last twenty-five years has been characterized by a persistent effort to develop style by adopting, as a basis of their designs, some historic phase or style of architecture and remaining faithful to it throughout every temptation. The results have invariably been good. They have shown progress and, although feebly followed by other men, have made it clear that persistent effort in this direction will inevitably give a type or style, sooner or later, that would be as distinct and beautiful as any historic style and be in keeping and harmony with modern advancement. But our educated architects must not be content, as at present, with merely doing correct, careful copying of that which has served its purpose and which does not indicate a vigorous life and a capacity for progress.

There is another fad, or rather fashion, to which the younger men from which the ranks of the profession are constantly recruited, are much given. It is the conceit that the power they recognize in themselves to appreciate, enjoy and produce the picturesque and odd is the certain ability to compose. It is only the first indication that they possess an architectural mind. They may be without that serious conviction that is absolutely essential to fine work, as well as that higher and more technical education that gives to a sensitive mind when composing a certainty which prevents looseness of design and an unwarranted variation in composition which, manifested in the smallest part, disturb the whole. It matters not how effective a part may be, how perfectly charming and unique this dodge or that; unless the whole shows that certainty of proportion, that apparently natural refinement and balance of parts that comes from the most careful study—so careful that the effort to produce it does not show—it is a failure. He who can only do clever work has but a narrow range. He is at the mercy of his own caprice. He follows the dictates of pleasure



IN THE RESIDENCE OF C. A. MURPHY, ESQ.

Montgomery Place, Brooklyn, N. Y. Charles P. H. Gilbert, Architect.



CHAPEL OF THE GENERAL THEOLOGICAL SEMINARY,

West Twenty-first street, New York City. Charles C. Haight, Architect.

rather than the serious convictions of duty. He can copy, he can invent, but he can not advance.

To sum up, then, the architectural fads of the day are of two classes. One that comes from the indiscriminate copying of successful men's work and reproducing details culled from striking and ornate buildings; the other from the false idea that unique and fanciful combinations constitute design.

George Keister.



ATHENIAN PERFUME VASE IN TERRA COTTA.

THE SORROW-CHORD.

O! GOD, Apollo! To thy fane,
With little of the sacred fire,
Weary, I come to praise thy name,
To praise it on a broken lyre.

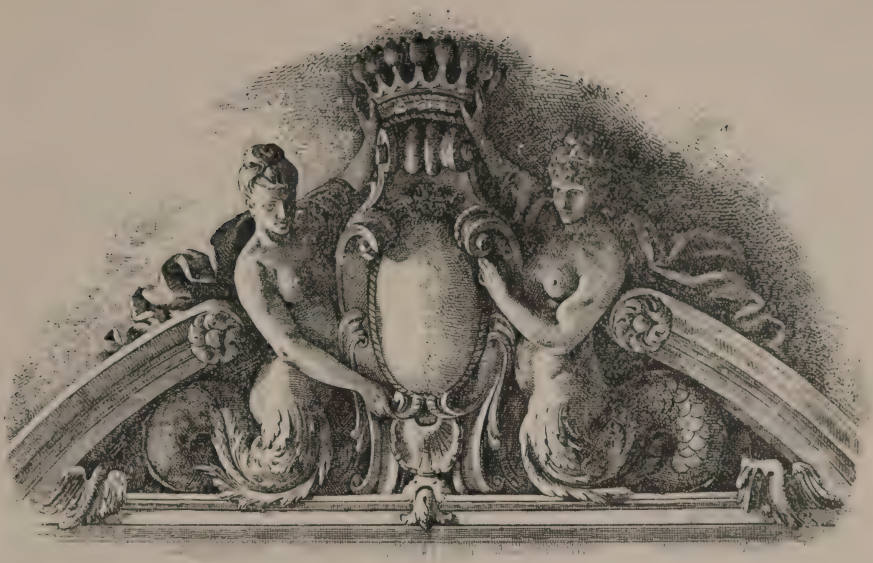
A broken lyre; for o'er its chords
The ruthless hand of Life has run;
When the tempestuous music ceased,
The strings were broken,—all but one.

Hark! O! my Father, dost thou hear
The fathomless pathos of that tone,
As though Humanity gave forth
Its pent-up deep sorrow in a moan?

Surely it would be such if borne
On winds unknown to earthly clime,
Should come the sound Life's waters make
Upon the barren shores of Time.



San Antonio, Texas. SAN ANTONIO NATIONAL BANK BUILDING. Cyrus L. W. Eidlitz, Architect.



TERRA COTTA.—SOME OF ITS CHARACTERISTICS.

THE evidences of the material prosperity of this country are probably more fully displayed in its street architecture than in any other manner. With the marvelous increase in real estate values during the past twenty years there has been a coincident growth in the size and decoration of its buildings. The concentration of commercial and social interests has created a demand for vast structures; the accreation of wealth has given the means to erect them; the immense advance in the ability of iron workers has furnished the skeleton, while the clay-workers have provided a large part of the material necessary to complete the form. I say a large part, for the student of architectural design in this country will not only find that there are very few noticeable buildings anywhere which have been erected more than twenty years, but also that a very large proportion of the structures which attract his attention are dependent upon terra cotta work for their enrichment.

Now an examination of the designs of these buildings will, I believe, divide them into two classes:

First, designs in which terra cotta has been used as a substitute for stone.

Second, designs in which terra cotta has by its facility of formation furnished the architect with a freedom of expression that enabled him to give scope to his fancy and produce results impossible in the school of line, square and plummet. The further fact will also become apparent, viz.: that much of the recent great advance in freedom of design in this country began with the advent of the architectural terra cotta worker.

When the use of burned clay in other forms than common brick was suggested to our architects, they at once gravitated towards two distinct ideas:

1. Terra cotta as a substitute.
2. Terra cotta as a distinct "building material."

Some architects were attracted by the hope of having found a cheap substitute for stone, which would enable them to get more show for less cost. Such architects would ask for large pieces, rock surfaces and stone colors. They would select a chip of natural



Shorthills, N. J. MANTLE IN PARLOR OF J. R. PITCHER, Lamb & Rich, Architects.

stone, and demand that the clay worker do an impossibility, viz.: reproduce that exact shade of color, ignoring the fact that the color of the stone is in a great measure due to the texture of its surface.

Stone work always presents a section of the material and shows the grain, while terra cotta always presents an outer skin produced by the concentration of the finer particles of the clay at the surface of the mould in pressing the material into the desired shape. In stone the carved work differs in color from the plain surface. Yet the material is identical.

As to uniformity of color in terra cotta it can only be obtained in one way, and that is available—let the painter have a chance.

The pursuit of cheapness never yet had any artistic value; therefore it is useless to expend thought on the question of terra cotta as a substitute or sham building material. Terra cotta is a valuable material; it has a practical utility and is capable of artistic expression in architecture. It is the materialized crayon sketch.

The proper use of terra cotta demands:

1. Moderate size of pieces.
2. Manipulation of the surfaces.
3. Consideration in the construction.*
4. Protection of the exposed joints.
5. Freedom of shade in color.

It must always be remembered when making designs for execution in terra cotta that the material is plastic during all the processes of manufacture. It has to be pressed into plaster moulds, to give it the desired form; then it has to be dried before it can go into the kiln, during which processes it will contract and lose about one-twenty-fourth of its bulk and one-twentieth of its weight. This shrinkage



Designed by Edison Electric Light Co.



Designed by Edison Electric Light Co.

* What I wish to insist upon is the necessity of taking into consideration the material used in construction. Thus: Iron can be used as beam lintels, stone may sometimes be so used too, but terra cotta should never be so used.



continues during the process of burning and makes the total contraction about one-twelfth and the reduction of weight about one-fourth. If the size and form are moderate this shrinkage will be obtained without cracking or distortion and with but small risk of failure. The same conditions affect the surfaces of the material; unequal drying causes varied contraction, which the high light of sunshine apparently magnifies; therefore terra cotta should never have a smooth surface for exterior work. Many treatments of surface are in vogue, such as tooled, combed, stippled and crinkled finish; all of these are used to convey the idea of a soft and plastic material.

The use of terra cotta sometimes leads to great errors in construction. It is customary to speak of terra cotta as being light in weight; but this is only true in regard to transportation of the surfaces, for when terra cotta is set in place and properly filled (so as to preclude the formation of pockets of water, which means ice in winter), it becomes the same actual weight as brickwork and very much of the same construction, therefore all excessive projections,



PORTE D'ANGLE, Rue Aiguillerie à PERIGUEUX

spans or openings ought to receive a good and sufficient backbone of iron construction.

There are instances in New York City where cornices with three feet of projection are simply covered with inverted boxes of terra cotta, each box capable of containing many gallons of water, and at about every two feet there is a convenient joint, which, when the pointing becomes a little loosened (as it will), will freely admit the rain water and let it soak into the walls, so that in the winter time ice will be formed in these boxes and breakage may result. Surely this is not the fault of the terra cotta, though the material is often blamed in such cases. In a climate of such extremes as ours, it is evident that all upper surfaces which are traversed by joints ought to be covered by some sufficient protection.

Almost all of the finest buildings in our city are disfigured by grimy and black streaks leading down from the vertical joints in the stone cornices or projecting mouldings. This could and should be prevented by the use of metal or other flashings for large projections, and raised joints for the smaller ones.

In the use of terra cotta this is imperative; for careless workmen will sometimes neglect to fill in the work properly, when it is being placed in its permanent position. Water and ice will then in due course cause trouble.



Designed by Edison Electric Light Co.

The color of terra cotta is a frequent cause of contention. It ought not to be. Absolute uniformity of color is beyond the possibilities of manufacture. It should be remembered that the tone of color is governed by the chemical constituents of the clay, and the shade of color is governed by the degree of heat involved in burning — a few degrees more causing the darker shades, or a few degrees less producing the lighter shades. The regulation of the heat of a kiln of burned clay (during the process of firing) within certain limits is at present beyond the ability of the most experienced of our clay workers. Hence it is unfair to ask it of them. If the question of shade of color is important to a certain design, as we have said, why not utilize the painter? He has a recognized field in the decoration of wood and iron. Is there any sound reason why he should not also decorate the terra cotta work? Mechanically there is none, for a coat of lead paint will last much longer on terra cotta than upon any other building material ever used, not excepting wood or iron.

A study of the relations of terra cotta to architectural design, founded upon a practical knowledge of this material, will surely enable our architects to produce an ideal brick and terra cotta structure, which shall as truly make its mark in our day as did the Certosa of Pavia, the Church of St. Rustico at Caravaggo, the Cathedral of Crema, and other buildings of Northern Italy, centuries ago.

James Taylor.

THE NEW YORK BUILDING LAW.

THE subject of laws relating to the construction of buildings most likely would be promptly rejected by the ordinary reader of magazine articles as dry, uninteresting and unprofitable. In reality the subject is one of uncommon interest to whoever has the courage once to give it attention. The inhabitants of our American cities are but laying the foundations of the great cities of the future, and the wise and proper construction of buildings with prudent forethought for the procurement of the greatest amount of good for those who must live in and near them surely deserves the attention of every thoughtful person.

Building laws are progressive; they are framed, altered and amended from time to time to meet varying conditions and to keep pace with new methods of construction. Such has been the history of the New York Building Law.

In the United States, New York, of all the cities, was the first to enact laws governing the erection and alteration of buildings, and in the successive and progressive steps taken in keeping such regulations up to the most modern state of the art of building and the most approved sanitary methods. As may well be imagined, this progress has been made with great difficulty. The speculative builder, and those who desired the old order of things to remain unchanged for reasons of their own, joined hands and frequently succeeded in delaying good amendments asked for of the Legislature. Unremitting and persistent effort was required to secure the many good features that the existing building law contains, and the end is not yet; for in the last Legislature the most complete and comprehensive law thus far formulated was lost on account of the deadlock that came in the Senate over the Canal investigation. The bill passed the Assembly and probably would have passed the Senate had the latter continued to transact business. Next year the same tiresome and almost endless performance will be acted again, but it is to be hoped with better results.

The first separate building law was given to New York in 1860. It is this law which has served as the foundation for all the subsequent laws, the guide for framers of similar laws all over this country. Prior to that date there were duties and powers possessed and performed by Fire Wardens in New York regulating the construction of buildings. The Fire Wardens were elected by the engineers of the volunteer fire engine companies. The regulations concerning the construction of buildings were very crude, the chief aim being to prevent the erection of frame or wooden structures in the downtown streets. The discretionary powers vested in these Fire Wardens in their capacity as Inspectors of Buildings were not always used in the best interest of the public, and the stories yet current of doings in those days show that city employés were quite as ready to blind their eyes or refrain from action as in more recent times. In the early days wood was generally used as fuel; fires were very frequent and fines were imposed on the occupants of

GRANDHALL
HOTEL
MAJESTIC
ALF. ZUCKER, ARCHT.
NY.

houses in which the flames originated.

The law of 1860 created a Department of Buildings. It provided for the appointment of a Superintendent of Buildings, a Deputy-Superintendent and eight Inspectors, one-half of whom were taken from among exempt firemen. The selection of these officials was made in a curious way: Three members of the Fire Department, together with three members of the American Institute of Architects, and three members of the Mechanics' and Tradesmen's Society, met in convention and made the nominations. Immediately after the nominations a return was made to the Mayor, who was thereupon required to swear into office the persons so nominated. The building limit was placed at Fifty-second street, from the East River to the Hudson River. The technical portions of that law were remarkably good. It is true it contains, for example, no limitation as to the height or width of non-fire-proof buildings, but the necessity for such restrictions did not exist at that time. The great buildings, some covering a whole block without a division wall and some reaching high up toward the sky, came later and were recognized as a menace, not only to surrounding property but to the whole city, demanding regulation by law. It must be understood that laws are not retroactive; building laws apply to structures erected after the enactment of amendments or the passage of a new law. Nor is a building law designed to interfere with individual liberty and enterprise within certain limits that a community determine is in its interest to establish. A builder may do what he likes architecturally, but in case he uses a stone cornice the law says the greater weight thereof shall be on the inside of the face line of the wall upon which it rests. And so of the hundreds of other requirements, all proper for public safety, and which are in the nature of police regulations.

The first Superintendent of Buildings, under the law of 1860, was Jonas N. Phillips, who previously had been one of the Fire Wardens. The Deputy-Superintendent was James M. Macgregor. In 1862 and the year subsequent thereto, the law was amended in many respects for the better. The Mayor was given the power of appointing the Superintendent, by and with the consent of the Board of Supervisors of the city. Before appointment, the Superintendent was required to pass an examination before a committee from the American Institute of Architects, and the candidate was required to be either a practical architect or builder. Macgregor became the Superintendent in 1862.

In 1866 the law was further amended. The line below which no frame or wooden building could be erected was placed at Eighty-sixth street, from river to river. Under the administration of this law serious public scandals arose. Discretionary power was vested in the Superintendent to modify or vary the law, but before permitting such deviation he was required first to obtain an order from the Supreme Court authorizing him to issue a permit. The newspapers of the period teemed with articles showing how modifications were signed in blank by a Justice of the Supreme Court, and when filled out the sanctions so issued were sold for money by men who thoroughly understood the rules of addition, division and silence. It was fashionable in those years for men intrusted with city affairs to wear diamonds and white neckties and conspicuously display the tiger badge of membership in the famous Americus Club.

In 1871 the building law was still further amended. A limitation was put to the width of non-fire-proof buildings, but none as to their height. This law created a Board of Examiners, consisting of one member from the American Institute of Architects, one member from the Board of Fire Underwriters and two members from the Mechanics' and Traders' Exchange. There has since been added two additional members to the Board—one from the Society of Architectural Iron Manufacturers and one from the Real Estate Owners' and Builders' Association. The latest proposition is to add still another one from the Real Estate Exchange, on the ground that the latter organization represents the


MAIN
DINING ROOM
HOTEL
MAJESTIC

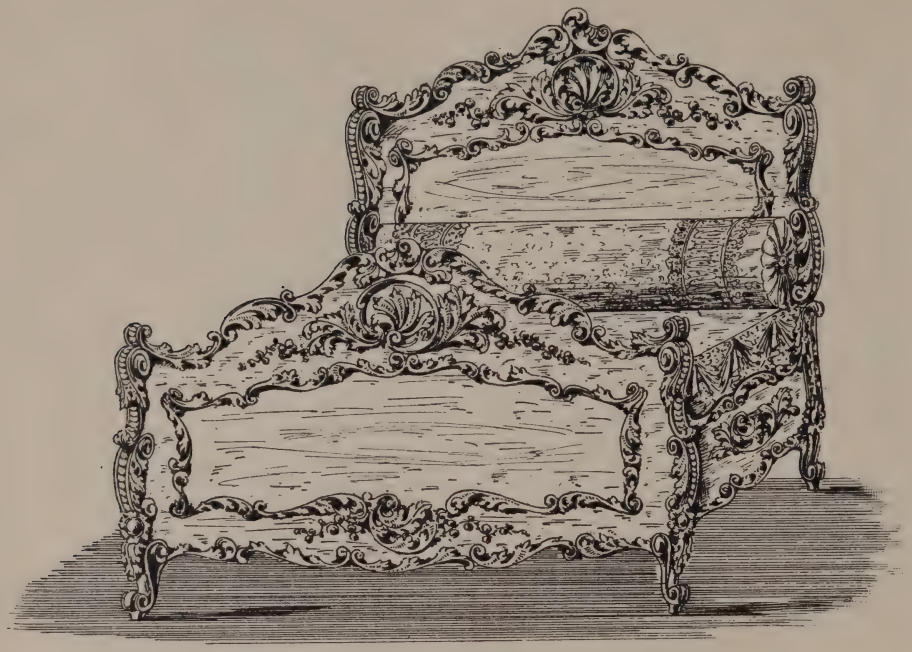
consumers as opposed to the producers of and dealers in building material. This Board has first to give its consent to any proposed modification of the law before the Superintendent can issue his permit. There is an erroneous impression prevailing quite generally that this Board can set aside the law and issue its own mandates instead. The powers of the Board are prescribed; it can only act in cases where there are practical difficulties in the way of carrying out the strict letter of the law, or where the provisions of the law does not directly apply, or where an equally good or more desirable form of construction than the law specifies is desired to be used. The need for this Board is growing less and less as the law is amplified and enlarged, and the comparatively little discretionary powers left after the proposed amendments as submitted to the last Legislature are finally incorporated in the law can be safely invested in the Superintendent.



HOTEL MAJESTIC.

Central Park, West, at 72d street, New York City. Alfred Zucker, Architect.

The law of 1871 required that all



DESIGN BY HERTS BROTHERS.

iron beams should be tested by actual weight or pressure placed thereon before being set up in place. This was and is an excellent provision in itself. It continues in force to this day, and will remain; but the method of its enforcement at the start proved very obnoxious to the iron founders, and was the first cause of the architectural iron manufacturers, as an organized body, taking up the work of securing for New York a proper building law, and the active interest thus invoked has continued without cessation from that time to this.

In 1874 certain amendments were made to the building law, principally to divide the work of the Department into bureaus, a Bureau of Inspection, a Bureau of Violations, and a Bureau of Fire Escapes and Iron Work. Again in 1881 amendments were obtained from the Legislature relating mainly to legal and administrative features of the law.

But the main requirements of the building law remained without alteration from 1871 to 1885. Macgregor had given way as Superintendent to his deputy, Walter Adams, in 1873, and Adams in turn was succeeded by Henry J. Dudley in 1878. Dudley held the office until 1880, when he was legislated out of office, and the Department of Buildings merged into the Fire Department as a bureau therein. The County Democracy had come into power; the Building Department was deemed to be rotten to the core, and Mayor Cooper nominated an able architect, Thomas H. McAvoy, since deceased, to be Superintendent in place of Dudley. The Board of Aldermen refused to confirm the nomination, and Dudley held on. Mr. John Kelly gave his consent, as the head of Tammany Hall, that the Building Department should be merged into the Fire Department, which was under the control of his organization. A few years later, in 1883, Mr. Kelly authorized his name to be used in the effort that was then made to take away the Building Bureau from the Fire Department and rehabilitate it into a Department of Buildings. Fire Commissioner Gorman, afterwards Judge, and at present Sheriff, was at that time



DESIGN FOR PROPOSED SUN BUILDING,
City Hall Square, New York City. Bruce Price, Architect.



AN OUT-OF-THE-WAY CORNER IN PARIS.

and always since has been in favor of making the Building Bureau a separate Department. The Fire Department has to do with the prevention and extinction of fires. The Building Department has to do with the erection and alterations of buildings, exercising inspection over an expenditure of some one hundred millions of dollars annually. Each department makes use of an entirely different grade of men, and each has quite enough to attend to in its own proper sphere.

Upon the Building Department being amalgamated with the Fire Department, as stated, in 1880, William P. Esterbrook was appointed by the Fire Commissioners to be the head of the Bureau of Buildings. The place of business was removed from No. 2 Fourth avenue, where it had been located almost from the time when the Department of Buildings was created, to the Fire Department headquarters at No. 155 Mercer street, and subsequently to the new headquarters on Sixty-seventh street, near Third avenue. Mr. Esterbrook held office for nearly five years, when he resigned, and A. F. D'Oench was thereupon appointed, who, after a service of four years, was succeeded by the present incumbent, Thomas J. Brady, in 1889.

Mr. Esterbrook was a builder of experience, and in a long business career had justly acquired a reputation for honesty and probity. He was a man of determination and blunt to an extreme degree. No violator of the law found any comfort at his hands. He would frequently quote the lines: "No rogue e're felt the halter draw with good opinion of the law." At the same time he freely admitted that the law was unfair in many respects, but it was the law, and he deemed it his duty to enforce it. The heights of walls as set forth in the law were all a little too low to give proper heights to a given number of stories, and had purposely been so made in order to compel owners and builders to sue for favors from the Department. It was understood from the first that the Superintendent, then styled the Inspector, could not be improperly approached; but this honesty on the part of the Chief gave his subordinates, the district surveyors, their opportunity, which they were prompt to take advantage of.

Immediately after Mr. Esterbrook took office, in the month of July, a request was made to him that he take up the work of securing a better law, and an offer was made to furnish him much material already prepared for that purpose. He agreed to undertake the task, and amendments were furnished him in the month of December following. He altered the amendments to suit himself and sent his bill to Albany in the early part of 1881. His best friends scarcely recognized the document in the shape that it came from his hands. However, the Conkling Senatorial contest in that session of the Legislature prevented final action on that particular bill. Before the time for the next session rolled around, Mr. Esterbrook called together in conference with himself representatives from the Architectural Iron Association, the Mechanics' and Traders' Exchange and the American Institute of Architects. A new bill was prepared and introduced into the Legislature of 1882. Opposition from speculative builders and those who had personal grievances against Mr. Esterbrook arose and the bill failed. It again failed in 1883. In the fall of the latter year Mr. Esterbrook issued a call addressed to the several associations and persons who had taken an active interest for or against the previous bills, to meet at the Ashland House and formulate a bill that would be acceptable to all. Equal representation was given to each association and the bill, as prepared by the conference committee, sent to the Legislature in the session of 1884, the bill still being known as the Esterbrook bill. The representatives of two of the societies—the Mechanics' and Traders' Exchange and the Real Estate Owners' and Builders' Association—refused to indorse the bill as a whole, and eventually put themselves in opposition to the bill and drew up a bill of their own, known at the time as the "Kickers'" bill. The Esterbrook bill got through both branches of the Legislature this time, but one of the opposition amendments had been put in,



Baltimore, Md. THE BRYN MAWR SCHOOL BUILDING. Henry Rutgers Marshall, Architect.

namely, a Board of Appeal, to which Board appeal could be taken from any decision of the Superintendent, and this without any expense to an appellent. When the bill reached the Executive Chamber, Governor Cleveland vetoed the measure, basing his objections on one or two technical errors that were discovered in the text.

The next year, 1885, the true bill went successfully through both Houses, in spite of opposition, which was about as fierce as ever. Governor Hill had become the Executive head of the State. At the public hearing which he gave he was directly asked to veto the bill by the Attorney to the Fire Department and by the Superintendent who had succeeded Mr. Esterbrook as chief of the Building Bureau. During the term Governor Hill had presided over the Senate he had become quite familiar with the facts connected with the efforts to get for New York a modern building law, and he signed the bill. It was conceded that there were some defects in the new law, but far less than the then existing law contained, and the new law was a great step in advance over the old. It required that all buildings exceeding a stated height should be constructed entirely fireproof. It provided for the safe construction of theatres and other places of public assembly. The Governor was promised that other advance steps would be duly taken. Governor Hill had prepared the way for the law by calling attention in his first annual message to the necessity for a new building law in New York, and Mayor Edson's annual message had also made reference to the same subject.

When the next amendments were undertaken the different societies bound themselves, by a compact in writing, to accept the will of a majority. The Fire Commissioners demanded that the power of summary arrest, as it formerly existed, be added to the amendments. It is hardly necessary to state that this demand was not acceded to, and anything but harmony was the result. The amendments went to Albany and became law in 1887, without the power of arrest being included.

The power to arrest for violations is a sore point with the building interest and real estate owners. That power was wrested away from the authorities on a direct issue, after it had been abused and made an instrument for oppression and extortion. Full and ample legal powers for the enforcement of the law through civil procedure is provided, and by injunction proceedings to stop willful violations. Reputable owners and builders should not be subject to the indignity of arrest, when perhaps they are in utter ignorance of a violation until the hands of an officer is laid upon their shoulders. The property doesn't run away, and the law reaches the property through *lis pendens* and other means to enforce the payment of fines, penalties and judgments.

It is the law of 1887 which is now in force. After a year or two's experience with that law it was seen where it could be improved in many respects; indeed it became absolutely necessary to make certain additions thereto. A new method of constructing tall buildings came into use subsequent to the date of the passage of the law. The skeleton of iron and steel simply surrounded by thin brick walls, used to-day in nearly all the great buildings now in course of erection, the law had made no provision for. Application has to be made to the Board of Examiners in each case. If the construction is good, an owner should have the privilege of using it as his right, and not as a favor. Not the least important new provision put in the new bill was one proposed by Superintendent Brady, requiring that all public buildings, schools, asylums, and hospitals hereafter erected should be of fireproof construction. The arrangement of the law was also changed, grouping together as far as possible all that related to any one subject, and in the order that a building progresses. The bill reached the Legislature too late in the session for action, inasmuch as opposition arose from unexpected quarters, rather to what the bill did not contain than to what it did. It was a grievous disappointment to the building interest that the amendments did not become law.

Up to the Legislature in its last ses-



London, England. GOVERNMENT BUILDINGS — THE HOME OFFICE. Sir Gilbert Scott, Architect.

sion, 1891, went a bill having the entire good wishes of all concerned. There was also submitted one or two points upon which the Committee on Revision differed among themselves, but in a friendly way the decision was left to the Legislature. One of these differences was the proposition to allow an increased height for non-fire-proof buildings if constructed on what is termed the slow-burning principle of filling up or cutting off the air spaces between the wooden floor beams. The Assembly Committee on Cities refused to incorporate this method in the bill. The building law was hung up for good, however, when the political dead-lock came in the Senate. When the Legislature next convenes, in 1892, the building law will be there for disposition.

It has thus been shown that for more than ten consecutive years the work of improving the building law of New York has steadily gone on. The work has been arduous to an extent that but few even in building circles know. The general public know nothing at all about it and apparently care less than nothing. It is safe to assert that if the '92 bill gets through the Legislature the building law will remain without material alteration for many years to come.

But there is another reform much desired by architects and builders, and that is the consolidation of powers now scattered through several departments of the city government into one department of buildings. Construction plans have now to be filed in the Building Bureau of the Fire Department. Plumbing plans have to go to the Health Department, as also plans for light and ventilation. Permits have to be obtained from the Department of Public Works for vaults and for the occupancy of streets for building operations. Preparing separate sets of plans is not only costly, but the time consumed in going to and waiting at the several departments is very burdensome to busy professional men.

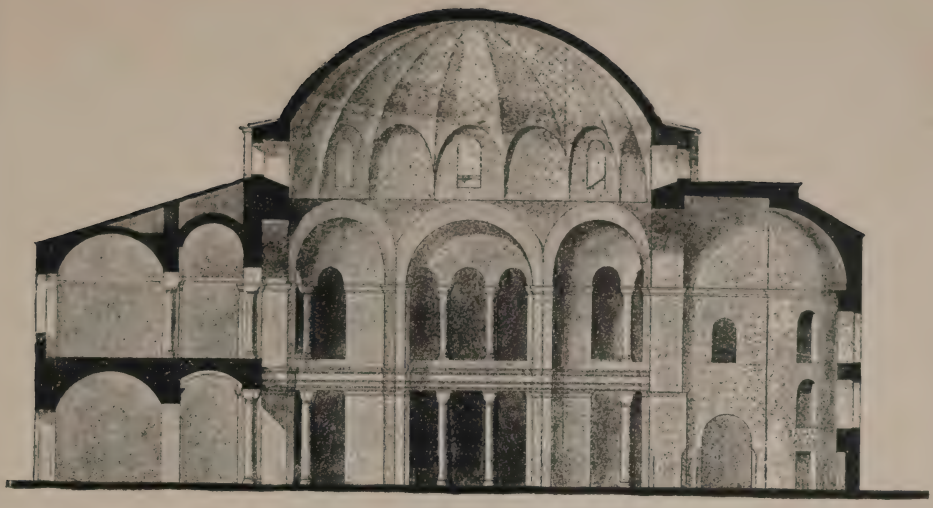
The paid Fire Department was not created until 1866, six years subsequent to the date when the Department of Buildings was created. The head of the Building Bureau is nothing more nor less than a clerk under the Fire Commissioners; he has no power of appointments or removal of his subordinates, nor is he free to act up to the importance of his station. It is no disparagement of the Fire Commissioners, as such, to say that they know nothing about the intricate details of building construction. Judge Gorman has stated that while a Fire Commissioner—and he was a capable Commissioner, with long previous experience as a fireman—the Building Bureau was a constant worry and fear to him, involving responsibility on him as President of the Fire Department, and with the feeling of responsibility the knowledge that he lacked the architect and builder's training to properly supervise the operations of the Building Bureau. One of the most capable Presidents that the Health Department has ever had, James C. Bayles, is outspoken in his opinion that the Plumbing and Light and Ventilation Bureaus in the Department over which he formerly presided should be removed therefrom and consolidated with other bureaus pertaining to buildings into a separate department. The various building trade associations have from time to time declared in favor of a separate Department of Buildings, and the real estate and architectural publications have advocated the same thing. It is of the first importance to the real estate and building interests to have the laws relating to the construction of buildings fair and complete. When this is finally accomplished, then there should be undertaken the supplemental work of Administration. Mayor Grant, or whomever may be his successor in office, will doubtless be willing to give his approval and aid to the re-creation of a Department of Buildings, when it is clearly shown that such is the united wish of the interests that annually add so much to the taxable value of the city. In the event of a Department being established, probably the most satisfactory arrangement would be to put the control into the hands of three commissioners selected for their known capabilities, and abolish the Board of Examiners as a useless appendage to a law covering almost every conceivable case.

Building laws will always be a necessity. When people are educated up to a better kind of construction than now generally prevails, more and more attention will be paid to principles that will insure reasonable security from fire and exemption from conditions which invite disease and foster contagion. It may not be so many years yet before every new building in New York will require to be constructed of incombustible material throughout. A present need is for an inexpensive method of fire-proof floors for dwelling houses. This want, like other wants, will be met in the steady progress towards safer and healthier buildings. A building law can advance no faster than the prejudices of interested persons will allow, so that at no time can a law be compiled that will correspond to the most desirable standards, nor should the laws in one city make the cost of buildings much in excess, class for class, of those in other cities, for this entails increased rents and has the tendency to drive away population to more favored localities: but the concentration of values and of inhabitants in New York make it quite proper that her building laws should be a good many steps in advance of any other American city. If there be maintained in the future the same careful attention to the matter that has been given to it in the past, the building law of New York can stand as a model for building laws in all the large cities of the world.



DESIGN FOR ELECTRIC LIGHT. The Edison Electric Light Co.

William J. Fryer, Jr.



SECTION OF ST. SERGIUS, CONSTANTINOPLE.

Byzantine Architecture.

ALTHOUGH iron has been used largely for various structures, it is not likely that in our time and in our country it will take the place of more time-honored materials—at least for monumental buildings. Its contraction and expansion under the influences of cold and heat require special arrangements not always easy to provide; from its rapidly conveying heat, and thus condensing the moisture of our atmosphere, it is objectionable for inhabited structures; from its liability to rust it has to be constantly oiled, varnished or painted, for as yet the "Barff" process has been little used; while in a conflagration the behavior of iron is simply disastrous.

We must, therefore, still look to the employment of marble, stone, burnt brick, terra-cotta, concrete, mud and timber for the main part of architectural structures. Every architectural structure of these materials is necessarily full of lessons for the architect, for there must have been the requisite conditions to fulfill in its plan and elevation—*i. e*, the arrangements for the particular exigencies of the building and the space and lighting required by the climate, as very different provisions must be made for a building in the north of Scotland, where damp, mist, rain and snow prevail, from those required in a building for the dry and burning air of Egypt or for the deadly heat and torrential rains of India.

The construction of every building must, too, have been adapted to the materials employed, while its æsthetic conditions must, at least, have been three-fold.

In the first place, the national or local ideas had to be embodied; in the second place, the prevailing taste had to be satisfied, as far as pure architecture was concerned; and in the third place, the ornament had to be such as appealed to the taste and knowledge of the people; by the word ornament; I mean not only floral ornament, but figure-sculpture, painting and mosaic. The execution must also have been adapted to the prevalent light and atmospheric conditions. We see, for example, that all the details of Greek buildings are designed for bright sunshine and a clear air; nothing is tamer and less effective than Greek architecture in England; and though Gothic details are admirably suited to a misty climate, they would doubtless look vulgar and obtrusive



WELLS CATHEDRAL.

in a sunny one. At certain times a near approach has been made to perfection in these particulars, and such architecture is called *Classic*. There have, however, been epochs in architecture which are peculiarly capable of affording us instruction, as we are constantly having fresh material wants to satisfy, fresh appliances to use, fresh adaptations to make, and we are eagerly expecting the rise of a national æsthetic want to satisfy too. In many ways the most instructive epochs for us are those in which buildings have been required for new purposes, when the old traditions of construction have been improved upon and when the canons of art have been changed. Any one of these new conditions may cause such modifications in buildings as to make them the forerunners of a new style, and when all of these conditions are present the new style has the highest claims on our attention. There are other considerations outside the former which invest a style with extrinsic interest, which may be roughly given as follows :—When it has prevailed for long periods of time over vast tracts of the earth, and when it has been the groundwork from which other styles have arisen. I have, therefore, chosen Byzantine architecture for my present course of lectures, as it fulfills all the conditions mentioned.

The heathen world had become Christian by Imperial edict, and the requirements of a new worship had to be provided for. The dome became an almost essential part of an important church, so that different canons of proportion were necessarily applied to these new domed structures and a new style of ornament was adopted. Next, as to the prevalence of the Byzantine style : after the founding of Constantinople it was used in all new buildings erected, during a certain period of its existence, from Britain to the Tigris, and from the Rhine and the Danube to the shores of Africa ; it lasted at Constantinople and in the lower Empire for a thousand years. Not a century after the Byzantine style had arrived at its perfection, in the days of Justinian, the Saracen invasion called for its application to the building of mosques and minarets for the Mussulman faith ; though, so admirably did the Christian churches suit the new faith, that a large proportion of them were converted into mosques.

At a later time it had with the Roman and Romanesque of the West an important influence on the emergence of Gothic. In using the terms Roman and Romanesque it may be necessary to give some sort of rough definition and some sort of arbitrary distinction, for all living architecture is gradually progressive, but its progression is not always in a direct line. Though architecture mainly depends on the active use of the architect's mental powers and on his native capacity, it also depends on the requirements and cultivation of those for whom it is done, and on the existing type ; architecture may progress on one or two or on all of its three main lines—*i. e.*, that of æsthetic excellence, that of planning, or that of construction. I think we may roughly call Roman all buildings executed in Rome, or for the Romans up to the early part of the fourth century A. D.—*i. e.*, up to Constantine's dedication of Byzantium as the new capital of the Empire in 330 A. D., though what we now call Byzantine methods had begun to be adopted long before that date. Though buildings were erected by the Romans in various parts of Europe after the sacking of Rome in the fifth century, we hardly call any building Romanesque that was not built by or for the Barbarians who had overrun the West of Europe. The word "Romanesque" was first used by De Caumont early in this century as defining the round-arched architecture of the Dark and Middle Ages, before Gothic had sprung up. The word Romance or Romanesque was originally applied to architecture much as it was to literature, and meant the current Roman method of building as the others did the Roman vernacular.

Byzantine architecture has, too, another claim on our attention, as it sprang up at a time when the art of Rome was at its lowest state of degradation, and not a century before the inroads of the Barbarians had begun to disorganize society, and the Dark Ages were about to set in in the West. Byzantine architecture may be said to be pre-eminently Christian, just as Gothic may be called

Roman Catholic architecture. Byzantine architecture did not technically begin until Christianity had become the State religion and the capital of the Roman Empire was transferred to Byzantium. But every art and science in this world slowly progresses from small beginnings; the sharp stone fixed in a cleft stick led the way to the chipped flint tied on to a handle, this to the polished stone weapon, this to the bronze weapon, and finally to the steel one. Nothing is made by man out of nothing; there is, of course, the primary invention or discovery; this discovery or invention is slowly improved upon up to a point, and then the concurrence of many favorable circumstances causes the progression to be rapid; circumstances change, and the progress is scarcely perceptible or is stopped altogether. The Romans, who valued nothing but fighting, oratory, law-making and husbandry, treated with contempt those who designed their buildings, modelled their statues or painted their pictures, who, for the most part, were slaves or freedmen, and scarcely deigned to mention their names, much less to give an account of their works, though we have, it is true, a letter of young Pliny to his supposed architect Mustius, and an epigram of Martial on Rabirius, the architect of Domitian's palace. It is only by knowledge and reflection that we are sure that buildings which seem to be brilliant inventions must have been copies of existing ones, enlargements of smaller ones, or developments from similar buildings with which the Roman architects were acquainted. If we did not know this, some epochs in Roman architecture would be marvellous—the Pantheon, for instance. We are not even sure of the name of Agrippa's architect, who designed the Pantheon; it has been attributed to Valerius of Ostia and to L. Cocceius Auctus, but we feel certain that whoever he was he was well acquainted with large-domed structures before he undertook the Pantheon, and that this experience was probably gained in Persia. Architecture is so obtrusive an art that its great creations stamp themselves on the mind, and any striking work is sure to be reproduced time after time. The dome of the Pantheon was not only the prototype of many Roman and Byzantine structures, but has been copied and paraphrased even to our own time.

Byzantine architecture was but the logical conclusion of all those gradual changes and improvements in Roman construction which converted it from a post-and-lintel style into a perfect vaulted and domed one, only this transformation was quickened at Byzantium by the larger employment of Greek and Oriental architects, possessing different tastes and different experiences from their Roman compeers.

No sooner did Constantine the Great (272–337) transplant the capital of the Roman Empire to Byzantium than he was in headlong haste to make this small city surpass Rome in architectural magnificence, and to erect imposing monuments in honor of his new faith; for he believed that through his conversion he had obtained absolute power. Directly he began his improvements, he not only found that the excellent organization and method of Rome was unknown there, but that there was, too, a dearth of architects, builders and foremen, and of that vast army of artisans which is wanted to build, decorate and furnish a structure. In one brief he says: "We want the greatest possible number of architects, but they fail us," * and he gives a list in another brief † of thirty-five master artificers who are to be freed from taxes if they come there and teach their sons. It may be interesting to hear the names of the professions and trades that were required. They were:

Architects,
Ceiling makers,
Plasterers,
Carpenters,
Doctors,
Stonecutters,
Silversmiths,
Builders,
Mule doctors,
Mosaic cutters,
Gold embroiderers,
Staircase hands,
Painters,
Sculptors,
Filigree workers, or pearl-piercers,
Inlayers,
Statuaries,
Mosaic workers,
Braziers,
Blacksmiths,
Marble masons,
Gilders,
Founders,
The next word is "blattiarii;" whether these were black-beetle killers, dyers of silk in purple, or goldbeaters, I must leave you to determine.
Tessilators,
Goldsmiths,
Mirror makers,
Carriage builders,
Levellers with the water-level,
Glassblowers,
Ivory-workers,
Fullers
Potters,
Plumbers,
Furriers.

* "Codex Theodosianus," L. 13, Tit. iv. 1, A. D. 334.
† "Codex Theodosianus," L. 13, Tit. iv. 2, A. D. 337.

Gibbon says: "The impatience of Constantine soon discovered that in the decline of the arts the skill as well as the number of his architects bore a very unequal proportion to the greatness of his designs. The magistrates of the most distant provinces were therefore directed to institute schools, to appoint professors, and, by the hopes of rewards and privileges, to engage in the study and practice of architecture a sufficient number of ingenious youths who had received a liberal education." (Gibbon "Decline and Fall," c. 17.)

The infusion of Romans and Roman methods into Byzantium must have given a Roman stamp to the new part of the city of Constantine's days; but most of the buildings he had erected were done in such haste and so badly, and were of such perishable materials, that time, earthquakes and conflagrations soon destroyed them.

Zosimus (Lib. 2) says: "As he expended the public treasure in unnecessary and unprofitable buildings, he likewise built some which in a short time were taken down again, because, being erected hastily, they could not stand long."

The proximity of the capital to Greece and to Asia Minor almost necessarily caused a great influx of Greeks and Orientals, anxious to make their fortunes or to gain distinction in the new capital, and there can be no doubt that architects were included in this immigration.

We know that as early as the time of Trajan (98 to 117 A. D.) most of the architects employed in Rome were Greeks, for in his letter to Pliny the Younger, then Governor of Bithynia, he says: "As there is no province that is not furnished with men of skill and ingenuity, you cannot possibly want architects; unless you think it the shortest way to procure them from Rome, when it is generally from Greece that they come to us." (Lib. 10, let. 49.)

Constantine and his more immediate dependants, I presume, spoke Greek and Latin, though the language of Byzantium must, I think, have been Greek, as it had been a Greek republic before its conquest by the Romans. Greek was probably the *lingua franca* of those parts, for after Alexander the Great's conquests the kings of Asia Minor, Syria and Egypt were Macedonians, and, though as the Macedonian language was incomprehensible to Greeks, it is probable that Greek was the court language. One never heard of any Macedonian literature, and the brilliant, versatile, polished and hungry Athenian, the *Græculus esuriens* of Horace, was almost sure to make his way to high posts. Athens in those days was like Florence in the Middle Ages; Pope Boniface VIII. said Florence was the fifth element. We know that as early as the beginning of the second century B. C., Cato the Censor learnt Greek, partly, no doubt, to teach his son a language that was necessary for a nobleman to speak. In the first century B. C., the great Lucullus was equally familiar with Latin and Greek, and wrote his history of the Marsian War in Greek. Some scholars think that the celebrated "Et tu, Brute!" of Julius Cæsar, when he was stabbed, was said in Greek and translated into Latin for patriotic reasons. Plutarch wrote his "Lives" for Trajan in his native Greek tongue; Martial, also, in the first century puts Greek into the mouths of Roman ladies; in the second century the Emperor Marcus Aurelius wrote his "Thoughts" in Greek; and one of the charges against Maximinus I. in the early part of the third century was that he was wholly ignorant of the Greek language. The Emperor Julian wrote his "Philosophical Essays" in Greek in the fourth century, and Ammianus Marcellinus in the same century was the last Roman writer who used Latin. After him all the Eastern authors wrote Greek, until we read in the "Arabian Nights" of a man speaking Greek like a Roman.* The fact of Greek being the language of the lower Empire has caused many writers to call it the Greek Empire, and the Romans Greeks. It is not in my province to determine whether the Romans of the Byzantine Empire became Greeks in their thoughts and actions, but it is undoubtedly the case in architecture that the versatility and

* The Romans of the Moslems were those of Constantinople.



London, England. CEILING OF DRURY LANE THEATRE.

suppleness of the Greeks supplanted the rigid adherence to rule that so distinguished the Romans. Viollet-le-Duc and M. Choisy insist on Byzantine architecture showing strong characteristics of the Greek mind.

We see in the Palace of Diocletian, probably built about the beginning of the fourth century, that the architect had begun to use arches springing from architraves, platbands, or blocks over the columns, and in one case even from Corinthian capitals themselves, showing that an important step had been taken towards the Byzantine style. M. Choisy believes that Diocletian's architect was able to dome the Temple of Jupiter without centering, so the art of doming must have made great strides as well, and, as it is stated that upwards of eighty domes fell down during Constantine's reign (306–337 A. D.), the architects must have been getting knowledge in the most practical way, just as the experience so gained in the twelfth century was used by the thirteenth century architects.

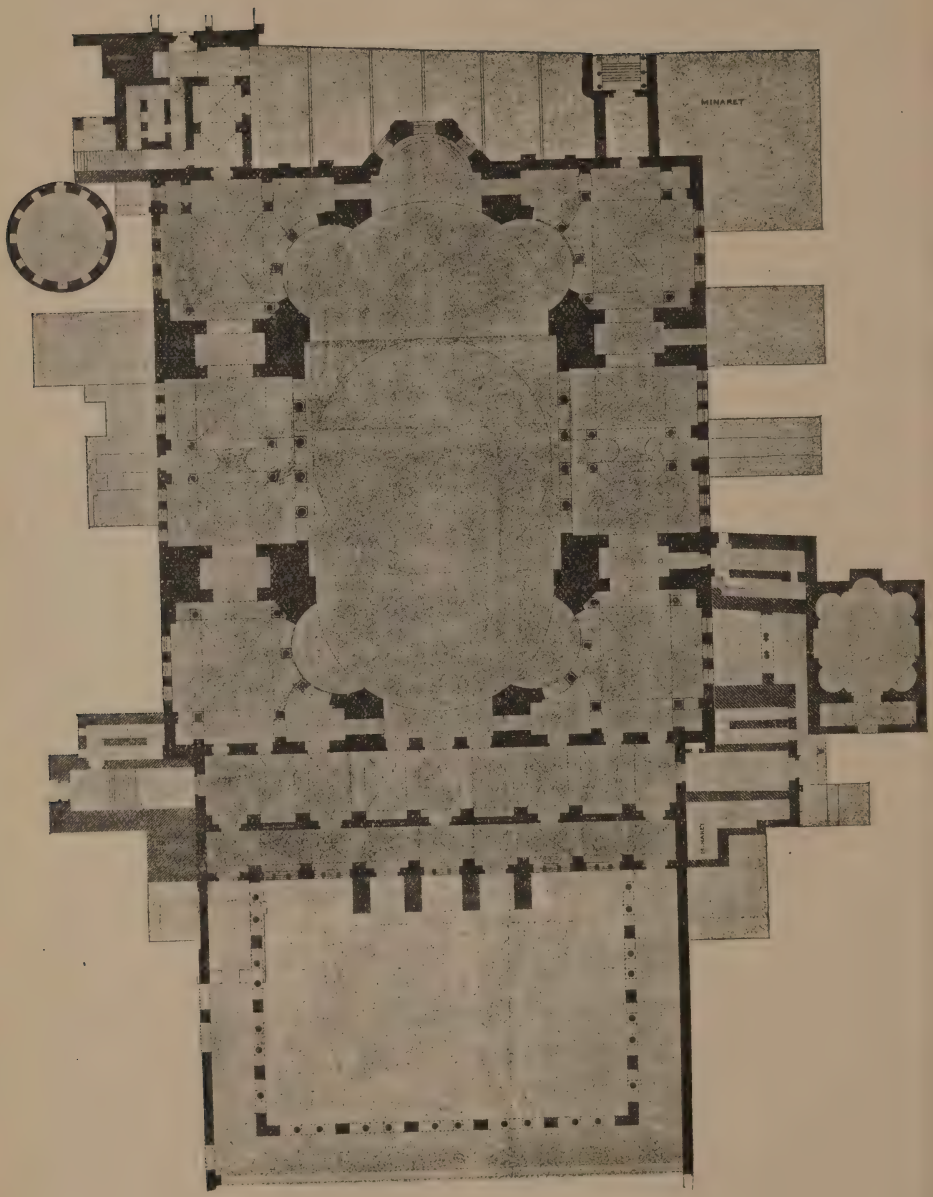
Little or nothing remains of the buildings at Constantinople of Constantine's time. His baths at Rome have been destroyed, though we have Palladio's drawings of them; but the magnificent basilica of Maxentius and Constantine's baptistery, and the tombs to his mother Helena and his sister Constantia, as well as his Triumphal Arch, remain; and there still exists a church he had built near Prœneste, dedicated to St. Marcellinus and St. Peter, much after the fashion of the Temple to Portunus at Ostia. He is said to have had built in Palestine the nave of the basilica at Bethlehem and the dome of the rock at Jerusalem, over the supposed tomb of our Saviour, commonly called the Mosque of Omar. St. George, at Thessalonica, is believed by some to have been built in the time of Constantine; I believe it to be later. It is very much like the church of St. Marcellinus and St. Peter, only with a bema or sanctuary added. This I think is evidence of its being of a later date, though Constantine once proposed to make Thessalonica the capital of the empire.

The most striking peculiarity of what we now call Byzantine architecture is the Pendentive, by means of which a circular dome may be erected over a square plan; and so distinctive is this of the style—at least after the time of Justinian—that M. de Verneilh takes it as the true test of Byzantine architecture in the West.

All the architectural students know that pendentives are those portions of a dome that are left when the remainder is cut off by the vertical sides of a square, and form four spherical triangles between the four great arches that pierce the side of the square, that the diameter of the dome so cut is equal to the diagonal of the square, and that the joints of pendentives are more or less normal to the curve, for pure corbelling does not form a true pendentive.

The first mention that I recollect of early Western pendentives is in Texier & Pullan's "Byzantine Architecture," 1864 (introduction, page 9), where those in Caracalla's baths (211 A. D.) are mentioned. These were found in the one remaining octagonal hall at the north end of the northeast apse of the enclosure; and, from a sketch M. Choisy has been kind enough to give me, the pendentives seem to be groined. M. A. Choisy* also informs me he has no doubt that the pendentives found by M. Dieulafoy in Persian buildings were erected in the days of the Achæmenides. This dynasty began in the eighth century B. C., and was so called from a supposed ancestor named Achæmenes, and ended by Alexander the Great's conquest of Darius at Arbela in 331 B. C., or, at least, when Darius was murdered by Bessus (330 B. C.). These palaces with halls domed on a square plan have hitherto been attributed to the Sasanian period. The Sasanian dynasty began at the accession of Artaxerxes I. (Ardshire) in 226 A. D., and was so named from his father Sasan. I should mention that this Persian discovery or practice was not that of the perfect spherical pendentive, but may be called a pendentive partly supported

*A. Choisy. "Les fouilles de Suse et l'Art Antique de la Perse" (extrait de la Gazette Archeologique de 1887). Paris, 4to, 1887.

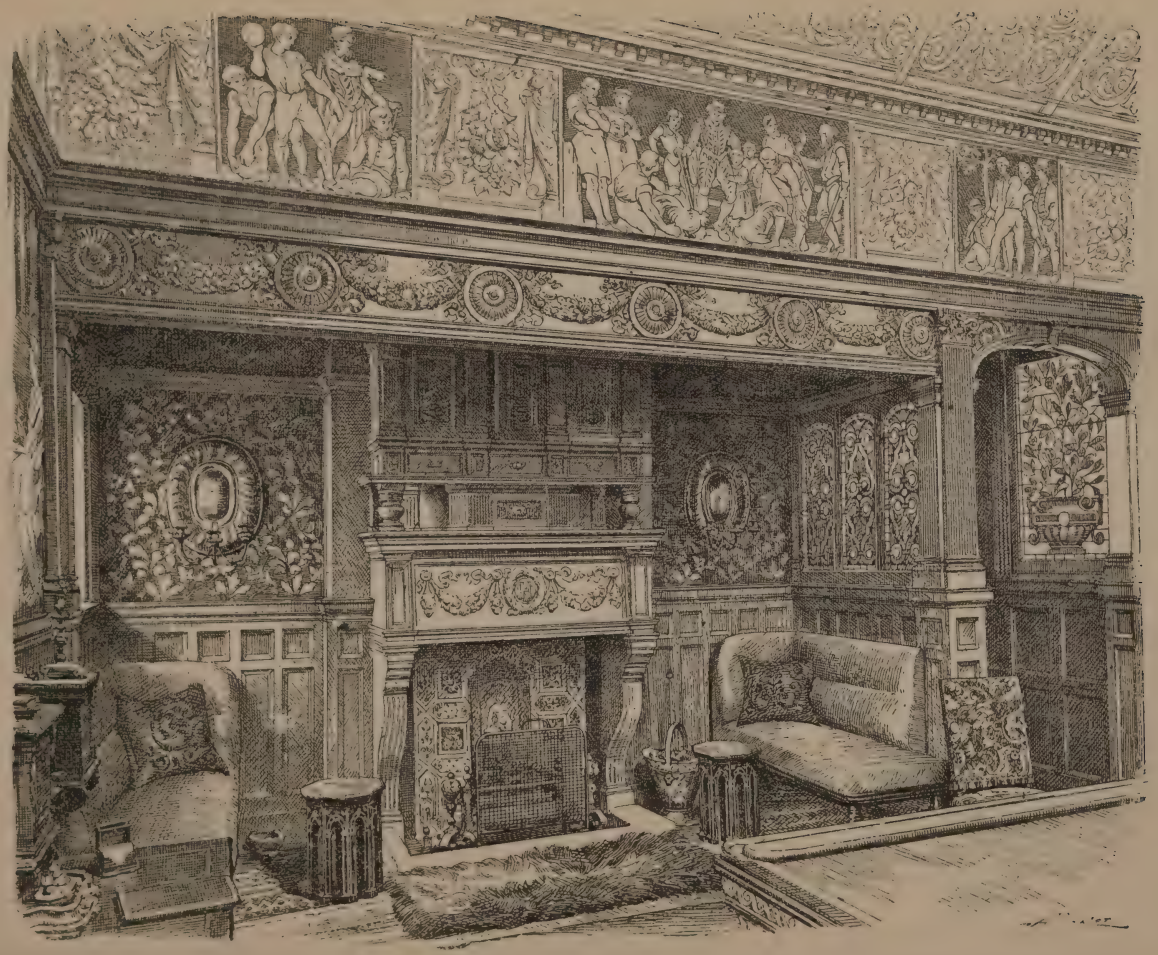


Constantinople. PLAN OF STA. SOPHIA.

on a squinch. A squinch is a stepped or conical vault, commonly called "bonnet-shaped." Circular domes on a square plan have been found at the Palace of Sarvistan, Ferouzabad, and in a pavilion at Ferachbad, places to the south of Susa, or nearer to the Persian Gulf. (See "L'Art Antique de la Perse," by Marcel Dieulafoy, 4to., Paris.) As far as we yet know, the Byzantines were the first who threw aside the squinch and used the pure spherical triangle as a pendentive, except the architect of that isolated example at Caracalla's baths. So numerous have been the invasions that it is more curious that so much has remained than that so much has been destroyed. Still, it has rendered it impossible to follow the steps of constructive improvement, for, not to speak of the repeated inroads of Goths, Huns, Vandals, Lombards, Burgundians and Franks in Europe, and the tide of successive Mussulman invasions, the destruction perpetrated by the hordes of savage Tartars under that monster Tamerlane, was almost enough to have destroyed every vestige of civilization, for he swept over Asia from beyond the Ganges to Smyrna and through Syria to the Holy Land, and this destruction only ended at the beginning of the fifteenth century.

You see how slowly great inventions spread. It was at least 300 years after its introduction into Europe before any attempt that we know of was made to use it on a grand scale. After the discovery of the use of the pendentive at so early a date as the fourth century B. C., it is scarcely necessary to cite examples before the time of Justinian, but the Marquis de Vogue, in his "Syrie Centrale," gives illustrations of a little chapel, or kabyle, at Omm-es-Zeitoun, in Syria, of the year 285 A. D., which has a dome on a square plan, but this is built on corbelling much after the fashion of the tomb at Mylassa.

In 532 A. D. Justinian began the rebuilding of Constantine's Basilica of Sta. Sophia at Constantinople; this cathedral had been burnt down in a riot between the partisans of the rival charioteers. The colors used by the charioteers in the Roman Circus were white, blue, red and green, but at Constantinople blue and green, called Venetus and Prasinus, seem only to have been used. The bulk of the people seems to have adopted one or the other of these two colors as a political as well as an ecclesiastical badge. The blues were the partisans of Justinian, the greens of the descendants of Theodosius, and as the blues were in favor of the reigning emperor and believed in his orthodoxy, they considered that their zeal on his behalf should cover all their crimes and misdemeanors; robbery, murder and arson were perpetrated by bands of robbers under the blue badge and mostly with impunity. The father of the Empress Theodora was the Emperor Justin's bear-ward, and when he died, leaving his widow and three daughters penniless, the widow appealed to the "fancy" in the circus to continue the employment to her new husband and thus to provide for her and her family. This appeal was received by the greens with contempt, by the blues with compassion, and they elected the new husband as their keeper of the beasts. Theodora and her elder sister were brought up as actresses and her genius led her to be a comic one. After she became Empress she always protected the blues and persecuted the greens. A riot took place at the conclusion of the games on the Ides of January, 532, and some of the rioters of both colors were executed. Thereupon the two factions joined, elected a new Emperor, and, after having burnt down about half the city, besieged the Emperor in his palace. Justinian was about to fly, but by the remonstrance of Theodora and his general, Belisarius, he consented to remain and allowed Belisarius to quell the riot, called the "Nika." Belisarius, Mundus and Narses forced their way into the hippodrome where the people were crowning the new Emperor Hypatius and butchered the bulk of them. Thirty thousand people are said to have perished in these riots. Forty days afterward the site of the new Cathedral had been cleared and the rebuilding was begun under the directions of two Asiatic Greek architects or mechanicians, Anthemius of Tralles and Iso-



London, England. BILLIARD-ROOM. Notley & Trollope, Architects.

dore of Miletus, from the model of Anthemius. The Cathedral to Sta. Sophia, Holy Wisdom or the Word of God, was completed by ten thousand workmen in about six years, and its cost is estimated at a million pounds sterling.

You see by the plan that the nave consists of a square, over which is the great dome, with semicircular apses at the eastern and western ends of the square.

On each side of the great apses are two subsidiary apses, and what we should call a "choir" projects from the centre of the eastern apse, but with the Byzantines the nave was the choir and the choir was the sanctuary or bema. There are aisles on both sides of the cathedral, the middle parts of which form the transepts; these, however, are hidden from view by the screens of columns to the north and south, so that the cross is only apparent from the plan. In front of the cathedral there is a narthex, "the reed," so called from its narrowness, and an exonarthex. The narthex was used by the Catechumens, or scholars not yet fully initiated into the Holy Faith, and by penitents guilty of backsliding, both of whom were not allowed to enter into the body of the church during the service.

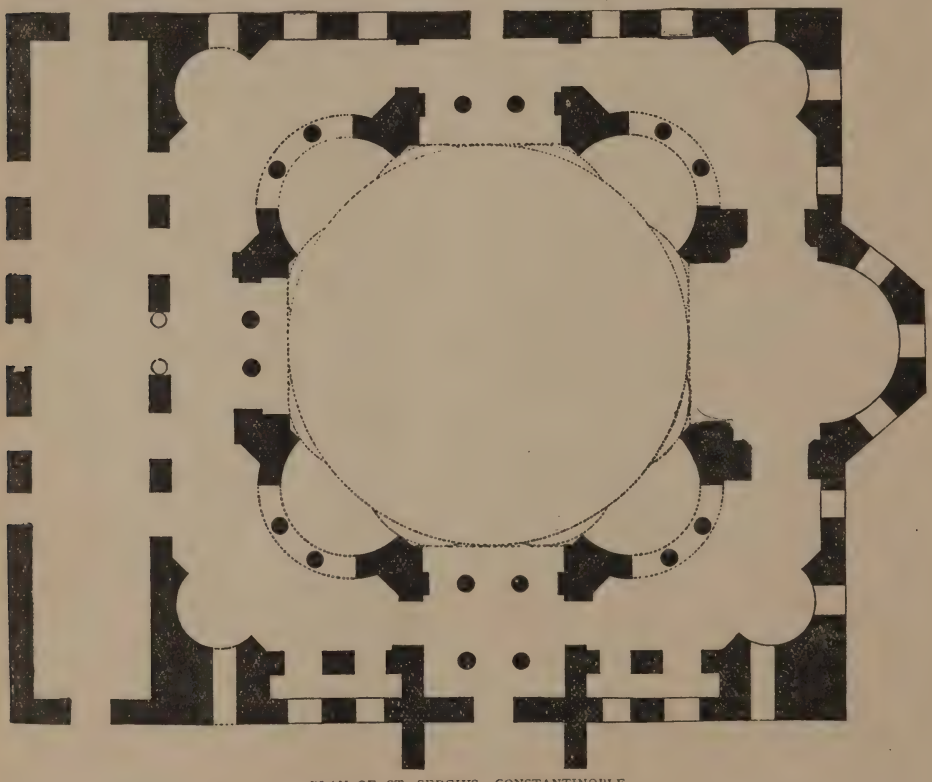
It was a brilliant idea of Anthemius to employ pendentives on so grand a scale, and although the use of pendentives, as we have seen, was not novel, it was so to the unarchitectural contemporaries of Anthemius. Procopius, who had been the secretary of Belisarius, and was afterwards made a Senator and Præfect of Constantinople, has given some account of the building and appearance of Sta. Sophia. Speaking of the centre part, he says: "As the arches are arranged in a quadrangular figure, the stone-work between them takes the shape of a triangle, the lower angle of each triangle being compressed between the shoulders of the arches, is slender, while the upper part becomes wider as it rises in the space between them and ends against the circle which rises thence, forming there its remaining angles. A spherical-shaped dome standing upon this circle makes it exceedingly beautiful. From the lightness of the building it does not appear to rest upon a solid foundation, but to cover the place beneath as though it were suspended from heaven by the fabled golden chain." ("Procopius of the Buildings of Justinian," Lib. 1.)

This splendid discovery in the art of doming is, as I said before, considered by M. de Verneilh to be the distinguishing mark of Byzantine architecture in the West. Besides this prime invention, many minor constructive improvements were made. The Corinthian capitals, which in Diocletian's Palace bore the arches directly on them, were no longer fit for carrying great weights when the pier carried by them was as wide or wider than the abacus, as the thin abacus of a Corinthian capital would have broken. A squatter capital was therefore used, mostly of a cup-like shape or a square, bevelled off into a circle, just as you see a pile bevelled to get on the ring. The capitals were not cut into deeply, but were mostly covered with surface ornament of the Byzantine Acanthus or of basket-work. There are, however, capitals of the fifth century that have the angles carved in high relief, and old classic caps were used, but mostly with a block over them. We by no means find in Byzantine architecture the artistic perfection of the best period of Greek, nor do we find the majestic dignity of the Augustan period of Roman; the profiles want vigor and style, and the mouldings are also wanting in character and beauty and too much resemble those used by a cheap marble mason to save labor and material. There is, too, in Byzantine architecture a lack of perception for the finest proportion. Though Procopius pays Sta. Sophia the following left-handed compliment: "It is distinguished by indescribable beauty, for it excels both in its size and in the harmony of its proportion, having no part excessive and none deficient; being more magnificent than ordinary buildings and much more elegant than those which are out of proportion."

Where ornament is used it wants that perfection of grace that Greek ornament had, though it is freer and more varied in design, and some of its acanthus-work is effective, elegant and

beautiful. The ornamental parts, however, are too frequently wholly covered with ornament of nearly the same weight. In the interior of Byzantine buildings the eye is fascinated by the color, the walls being wholly covered with beautiful marbles, often inlaid in superb patterns, and the domes and vaults with glass mosaic; in short, it was the decoration of the days of imperial Rome, only, instead of the ideal forms of beauty portrayed in gods and goddesses, heroes and nymphs, we have "grisly saints and martyrs hairy." Perhaps, too, the judgment is somewhat warped by the lovely materials employed. The outsides of early Byzantine buildings are mostly left to take care of themselves, though an inclination to this method was characteristic of the post-Augustan architecture of Rome and is a favorite programme for obtaining excellence in the present day.

The later buildings, called by some "Neo-Byzantine," have always high drums to the domes; those that are octagonal and whose window heads cut into the dome are almost hideous outside and contrast most unfavorably with the plainness of the earlier buildings; but for all this I think we may say that Roman architecture had at last logically advanced to a purely arched and domed construction, and had clothed that construction with a new system of moulding and of ornament, so as to form a distinct architectural style. In the present day all the architects of Christendom are striving to find out what will take the fancy of the people. Each architect has so far mastered one of the bygone styles as to have rendered it flexible in his hands, so that he can mould the style to the wants and uses of the present day (We get every past style admirably paraphrased, if we except Greek and



PLAN OF ST. SERGIUS, CONSTANTINOPLE.

the work of the sculptor architects of the early Italian Renaissance.) If the varieties of styles be considered, ranging as they do from prehistoric architecture through the solid marble architecture of Greece, the veneered architecture of Rome and Byzantium, through the Saracenic, Gothic and Renaissance styles, and their endless schools, this must be looked on as no small achievement. Still, we have to make the one step forward which will captivate the sense of beauty and æsthetic fitness that we think must be floating in the minds of the public, and thus lay the foundation of a new style, which our successors may improve upon and perfect. We especially want to give to the new materials employed—particularly to iron—some vigorous stamp of architectural beauty.

The late Mr. H. H. Richardson, of America, gave a Byzantine air to some of his buildings, and adopted or adapted some Byzantine forms and ornament, and some of you may have heard Professor Babcock's eulogy on the new Byzantine architecture of America.

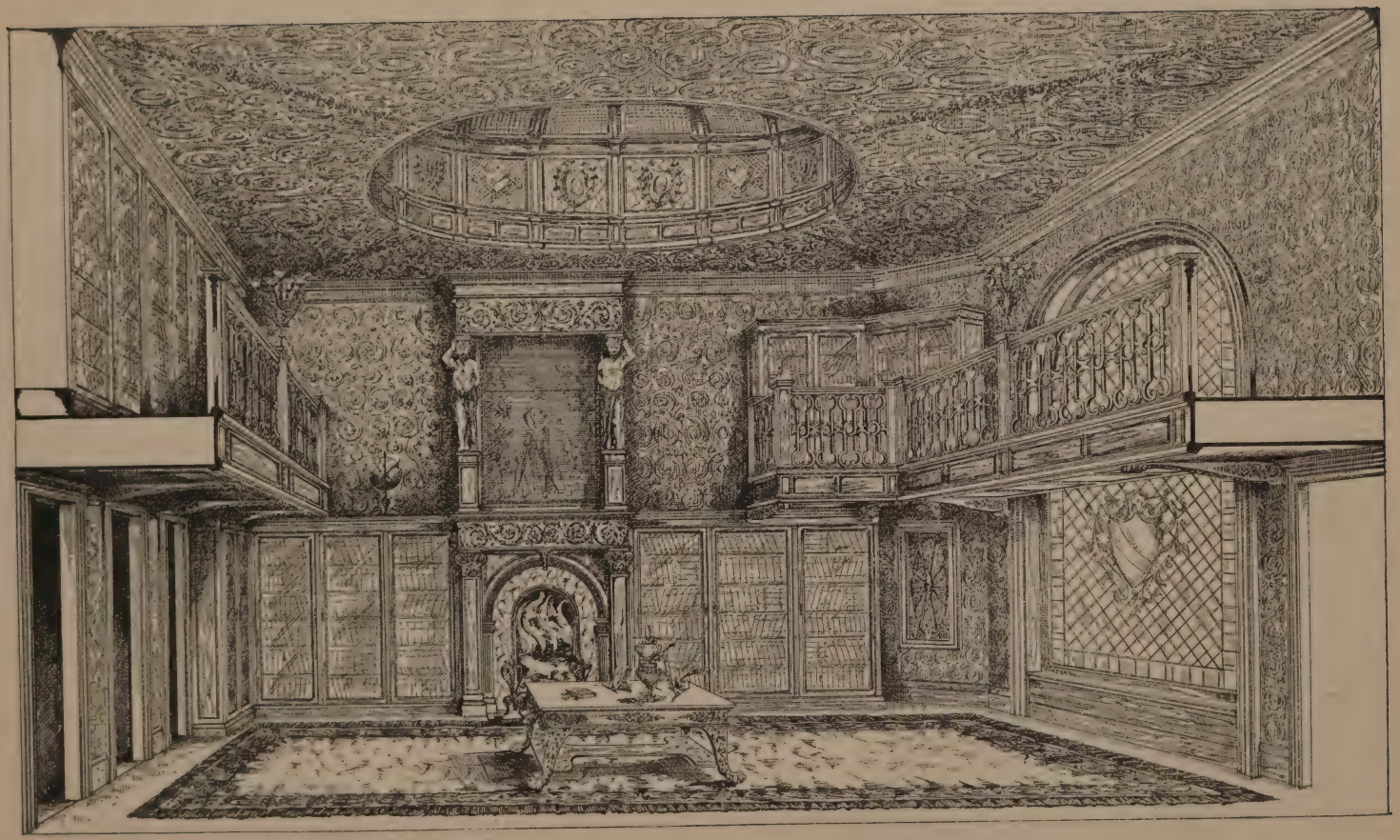
It is not so much, however, as a style to be paraphrased, as a valuable study to be pursued, that I am drawing your attention to it, though if iron were eliminated there are few bye-gone styles that are so capable of being now used, and are in many respects so satisfactory. Byzantine buildings of the best age look internally stable, grand and simple, and we are by no means bound to perpetuate the poor mouldings or semi-barbaric figures of Byzantine art; we want architecture, not archæology.

*Professor Aitchison.**

(To be Continued.)

* Lecture delivered at the Royal Academy.





A LIBRARY INTERIOR. Herts Brothers, Designers.



SOME COMMON FACTS ABOUT PLUMBING.

WITH all who are connected with the building industry of the country at the present day, it is unnecessary to draw attention to the prominent position which "sanitary plumbing," so called, occupies in the construction of buildings. It engages the attention of the architect in a marked degree, partly because of the newly-awakened interest in all that pertains to healthy home surroundings, but in a greater measure because of the fact that in New York and other of the principal cities of the country the practice of the trade of plumbing is regulated by law, and architect, owner and plumber are alike bound to an adherence to the requirements of the State plumbing law or the municipal ordinance, according to circumstances. At first sight, the prominence given to the plumbing work in a building suggests an inquiry as to the "reason why." This is easily explained. The purpose to be effected by the work of the plumber is the safe removal of the sewage and waste matters of the house to the public sewer or some other accepted place of deposit, the introduction of a proper water supply, and the exclusion from the building of sewer air, laden as it is with the germs of disease. The pipes to be used as channels for the accomplishment of these objects are for the most part covered up when the building is completed, because they are placed in partitions and recesses, under floors and in places in a great measure inaccessible after the work of the other mechanics is finished.

SEWERAGE AND WATER SUPPLY OF THE ANCIENTS.

Although the improved methods which have of late years come into practice tend to give, in a way, a modern character to sanitary plumbing, its objects were comprehended, and methods were devised for attaining them, in the early ages of the world's civilization. Sewerage and drainage, water supply in dwellings, exclusion of sewer gas and ventilation of sewers, all of which are dwelt upon at the present day as being indispensable to healthy living, were enjoyed as far back as a thousand years or more before the Christian era. The great sewer of ancient Rome, the *Cloaca Maxima*, commenced 2,500 years ago, and still existing, bears evidence to the importance attached to sewerage works; and it is worthy of note that the existence of sewer gas was as well known to the ancients as to the sanitarians of our own time. In Justinian's "Digest," completed Anno Domini 534, it is stated that "the Prætor took care that all sewers should be cleaned and repaired for the health of the citizens, because uncleaned or unrepaired sewers threaten a pestilential atmosphere and are dangerous."

In the same manner the water supply

for use in houses was made a matter of paramount importance, and in Rome, in the closing days of the Republic, there were no less than nine aqueducts traversing the city and supplying water in the houses. In the reign of the Emperor Augustus the water system was as closely regulated as it is to-

not appear to be out of place in an article dealing with the subject of plumbing and drainage in our own times to give a brief statement of the methods adopted 2,000 years ago in order to secure the advantages which some of us seem to consider as the outcome of modern civilization and progress. There



THE CENTURY CLUB.

West 43d street, New York City. McKim, Mead & White, Architects.

day in most of our American cities. Severe penalties for misuse of water were imposed, and rules adopted for its distribution were formulated and enforced with the utmost exactness. It is foreign to our purpose to enter minutely into the forms which were observed at the time, in connection with applications for water concessions, but it does

was neither a Board of Water Commissioners nor a Department of Public Works, having a Board of Health in active co-operation, in Rome, but the son-in-law of the Emperor, M. Agrippa, was in sole charge of all the aqueducts and of the entire water supply of the city. He reorganized the system and introduced admirable order in the ad-

ministration of an office which might, if he lived now, be known as that of Water Purveyor or Register. He opened a regular account of the receipts and of the distribution of water for public and private uses and made laws to insure the preservation of the aqueducts, the maintenance of an abundant supply of water as well as to apportion the quantity to be reserved for public use and for distribution to individuals. These were some of the advantages enjoyed by the Roman citizen on the threshold of the Christian era; and, nearly at the close of the nineteenth century of that era, it does not appear that we enjoy any more advantages in this respect.

THE PLUMBER OF OLDEN TIME AND HIS WORK.

Speaking as we are at this point, of the ancient plumber, him who flourished when the Roman aqueducts were in full operation, we are unable to define with any degree of accuracy at what point the limits of his trade were set. The records which come down to us of the baths in the ancient cities of the East in which so much lead pipe had been used show beyond question that the plumber was in demand, as the lead pipe of that period was the work of his hands. There does not appear to be any information extant as to the method of pipe construction before the Roman era, but it is generally supposed that the Roman plumbers borrowed their methods from those of Babylon and other older cities. They manufactured their pipes from sheet lead cut in strips of required width, so that when folded over and the edges united by solder a tube of the diameter required was completed. The pipes were made up in lengths of 10 feet, and in a variety of bore from 1 to 12 inches, the thickness of the sheets varying in accordance with the diameter of the pipe.

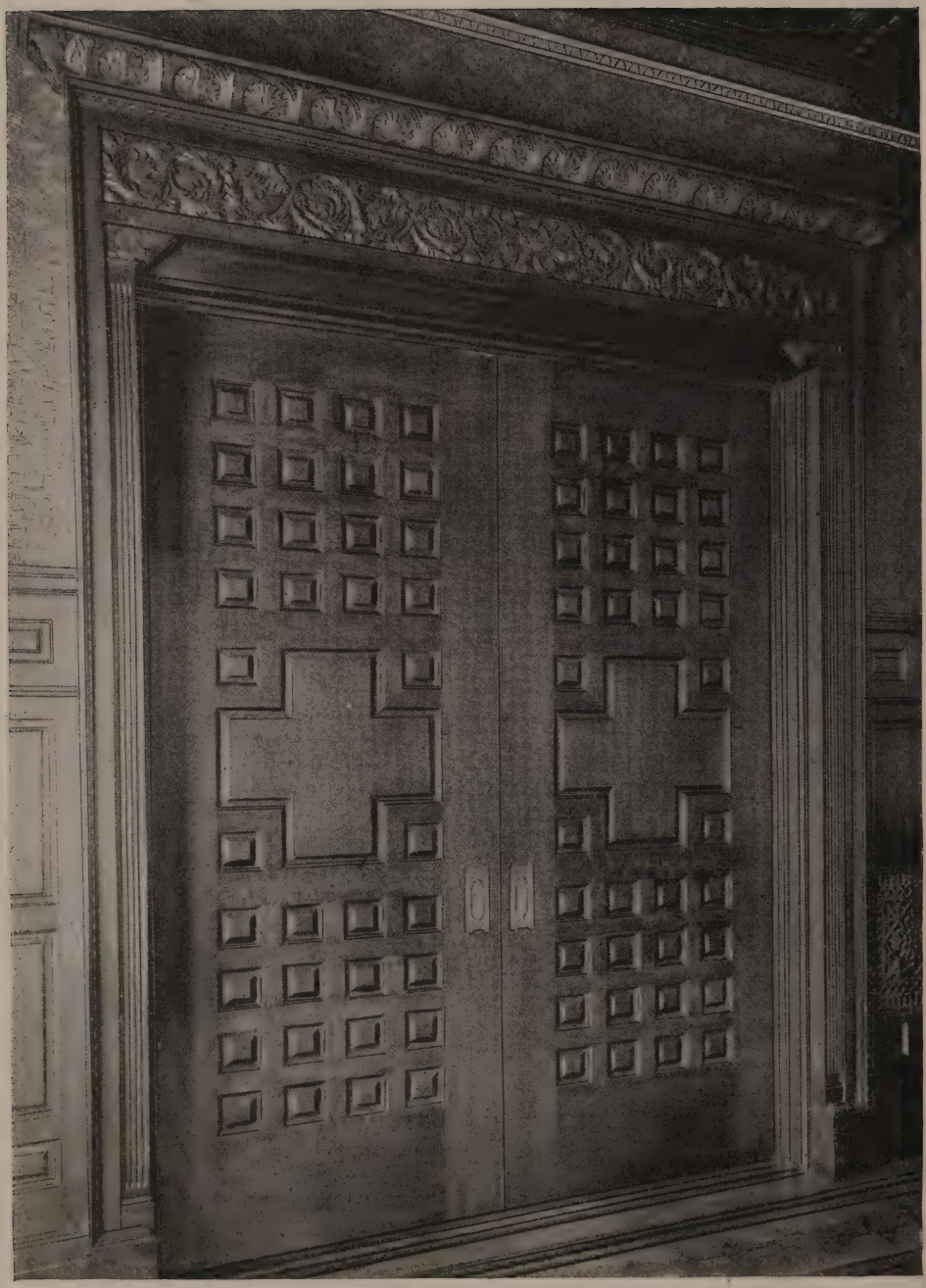
We lose sight of the plumber, until in the fourteenth century, with his sphere of usefulness considerably enlarged, we encounter him in England busily engaged in covering roofs with lead, making gutters and overflow pipes, and what we would call at the present day rain leaders. The plumber also made lead coffins, baptismal fonts, lead cornices, and had as a part of his duty to do *repoussé* lead work, the sheets for which were made thick enough to allow the pattern to be beaten out with the aid of small hammers. Another feature of the plumber's work of the period was the fashioning of "heart caskets," it being a custom of the time that when a leading personage died his body should be placed in the family vault, while his heart, inclosed in a casket, should be sent to some noted shrine to be buried before the high altar. In certain instances these caskets were made of silver, but in most cases they were of *repoussé* lead, fashioned and worked out by the plumber, who claimed, at that period, to be only what his name implied, a "worker in lead."

FIRST PLUMBING LEGISLATION.

At the present day one of the alleged injustices to which the plumber is subjected and against which he rebels is—plumbing legislation. He is at a loss to account for its necessity and thinks that he could get along just as well without it. He probably is not aware of the fact that 127 years before the discovery of America by Columbus the plumbers of London set the example and had presented in Parliament, in the year 1365, and had passed the following statute, which we give verbatim, as showing that the individual members of the Guild of Plumbers had so little faith in the personal honesty of each other as to seek by Act of Parliament for "Trade Protection," as they understood it, which meant the enforcement of certain rules which they could not accomplish otherwise than through the aid of the common law. This is the text of the Statute known as "38 Edward III., A. D. 1365:"

"May it please the honorable men and wise, the Mayor, Recorder and Aldermen of London, to grant unto the plumbers of the said city the points that here follow:

"In the first place, that no one of the trade of plumbers shall meddle with the works touching such trade within the said city or take house or apprentice or other workmen in the same if he be not free of the city, and that by assent of



DOOR IN RESIDENCE OF THOMAS ADAMS, ESQ.

Carroll Street, Brooklyn. Charles P. H. Gilbert, Architect.



Montclair, N. J. COL. FELLOWS' RESIDENCE. Francis H. Kimball, Architect.

the best and most skilled men in the said trade testifying that he knows how well and lawfully to work, and to do his work that so the trade may not be scandalized or the Commonalty damaged and deceived by those who do not know their trade. Also, that no one of the said trade shall take an apprentice for less than seven years, and that he shall have him enrolled within the first year, and at the end of his term shall make him take up his freedom according to the usage of the said city.

"Also, that everyone of the trade shall do his work well and lawfully, and shall use lawful weights as well in selling as in buying without any deceit or evil intent against anyone, and that for working a clove of lead for gutters or for roofs of houses he shall take only one halfpenny, and for working a clove for furnaces, *tappetroghes*, belfries and conduit pipes one penny, and for the waste of a wey of lead when newly molten he shall have an allowance of two cloves as has been the usage heretofore.

"Also, that no one for singular profit shall engross lead coming to the same city for sale to the damage of the Commonalty, but that all persons of this said trade as well poor or rich as may wish shall be partners therein at their desire. And that no one himself or by another shall buy old lead that is on sale or shall be within the said city or without to sell it again to the folks of the said trade and enhance the price of lead to the damage of all the Commonalty.

"Also, that no one of the said trade shall buy stripped lead of the assistants to tilers, 'laggers' or masons or of women who cannot find warranty for the same. And if any shall do so himself or by his servants, or if anyone be found stealing lead, tin or nails in the place where he works he shall be ousted from the said trade forever at the will and ordinance of the good folks of such trade.

"Also, that no one of the said trade shall oust another from his work undertaken or begun or shall take away his customers or his employers to his damage by enticement through carpenters, masons, tilers or other persons, as he would answer for damage so inflicted by good consideration of the masters of the trade.

"And if anyone shall be found guilty under any one of the articles aforesaid let him pay to the Chamber of Guildhall in London for the first offense forty pence, for the second half a mark, for the third twenty shillings and for the fourth ten pounds or else forswear the trade."

It does not appear that this statute was ever repealed. If so, it should still be in full force and effect. A plumbing ordinance was passed in London in 1754, which gave to the Corporation of London considerable power over the plumbers of the city.

PLUMBERS AND THE WATER SUPPLY TO BUILDINGS.

The introduction of water into buildings in England in the fourteenth century opened up a new source of industry to the plumber of that period. In our day when water is abundant it seems strange to read that the early permits for its introduction restricted the size of the pipe to that of a "goose-quill," from which it may be inferred that the use of stopcocks was unknown and that the water flowed constantly into some receptacle intended for that purpose. The first water so introduced was, however, done surreptitiously, an old record being extant in which the theft is thus quaintly set forth: "A wax chandler in Fleet street had by crafte peerced a pipe of the condit withynne the ground and so conveied the water into his selar, wherefore he was judged to ride through the citie with a condit upon his hedde."

There is an early reference to the introduction of water into dwellings in Dublin, as appears by a Latin entry in an ancient and curious book in the possession of the Corporation of Dublin called the "Domesday Boke of Dyvelin City," to the effect that on the morrow of St. Leonard in the thirty-ninth year of King Henry (7th Nov., 1239), the Prior and Convent of the Holy Trinity, Dublin, received the water from the Vase (basin or reservoir) of the citizens of the said City of Dublin * * * to be held by them for three next following years from the said day."

A grant was made later on by the Mayor of Dublin to Sir Richard de Exeter of "a certain portion of water that is of a pipe equal to the size of a goose-quill, and also to their fellow citizen Henry le Marshall for the convenience of himself and his neighbors dwelling near him, that he should be allowed, at his own expense, to attach a pipe to theirs to conduct the water to his house * * * but the pipe not to exceed the grossness of a goose-quill."

Similar permits were given in London and precautions taken to keep the water mains from being privately tapped, a task not over difficult, considering that the conduit pipes first laid were of timber lengths of roughly squared elm trees, bored through after the fashion of the wooden pump. One end of this crude pipe was tapered so as to enable it to be driven into the next length, but



Budapest. PALAIS WODIANER. Baura A. v. Wielmans, Wien.

this did not last very long, for the interior of the pipe became decayed and worm-eaten, and the water being vitiated in taste, the timber piping was gradually replaced in London and other cities by metal mains, and the increased water supply, as is the case at the present day with us, brought increased patronage to the plumbers.

It was not until within the present century, however, that the introduction of baths, water-closets and other kindred plumbing and sanitary appliances became general, and as this brings us to our own times, we will leave the consideration of the progress made in Sanitary Science in England since that time for some future occasion and turn our attention to what has been done in America in that direction within the present century.

SANITARY PROGRESS IN AMERICA—WATER SUPPLY.

As one of the greatest incentives to sanitary progress is an abundant water supply, it is necessary that we should here inquire into the provision made in American cities for the needs of residents. As far as can be learned from the earliest available records the water supply of New York (or New Amsterdam as it was called until 1664) was derived from wells. No mention was made of pumps during the Dutch occupation, nor in any of the "Minutes of the Common Council" up to 1691, so it is to be presumed the water was only to be obtained by the old time chain and bucket. This state of things evidently continued to September 24, 1700, at which date an entry appears in the Minutes of the Council to the following effect:

"Ordered, that the neighborhood that live adjacent to the King's farm and have benefit of the public well there built do contribute to the charge thereof in proportion, or else be debarred from drawing water there." Not until the year 1741, or 150 years ago, was there any reference to pumps, and then only through an entry in the fifth volume of the Minutes, under date of October 25, 1741, referring to a "draft of a bill for mending and keeping in repair the public wells and pumps in this city."

The rapid growth of the population of the city between 1741 and 1774—from about 7,000 to over 21,000—rendered it necessary that measures for an increased water supply should be taken, and in the latter year plans were perfected "to insure a more abundant supply from a large well in the Collect, the water to be raised by machinery and distributed through the city in wooden pipes." A proposition was further entertained by the corporation in the same year "to erect a reservoir and convey water through the several streets of the city;" and the work being authorized a committee was appointed to assist the projector and superintend the work for which contracts were duly made and the necessary financial guaranties provided. The Revolution, however, put a stop to the project, and it was not until 1797 that it was revived and the Manhattan Company incorporated. In 1804 the pumps which had been in use up to that time, and which consisted of three or four common forcing pumps worked by horses, were superseded by double-acting pumps worked by a steam engine. These did duty until the Croton Aqueduct became an accomplished fact.

The water works in Philadelphia, commenced in 1799, were constructed on a more expensive scale. As might be expected in those early days, there was no incentive offered for the cultivation of the work of the plumber, as there was no water supply. We have, therefore, no data as to the actual existence of that individual, and have to search for him and his work later on, when the enjoyment of baths, water-closets and other sanitary luxuries became possible. In fact it is hardly worth the trouble to search out the antecedents of American plumbing prior to the creation of the Croton Aqueduct Board in 1829, but inasmuch, as under the law creating that Board, the Common Council was authorized to make all necessary rules governing the supply of Croton water to buildings the plumber became indispensable, and from the natural desire to enjoy the blessings of an abundant water supply, to a great extent a necessity. Changes or transfers of the authority for regu-

lating the water supply occurred in the years 1849, 1864, 1870, 1871 and 1873, from the Common Council to the Croton Aqueduct Board, and finally to the Department of Public Works, where it is at present vested, and under it the plumber at the present day holds his license to open streets and make sewers and water connections.

FIRST STEPS TOWARDS OFFICIAL SUPERVISION.

The earlist movement towards providing some means of official supervision of sanitary work appears to have been outlined in 1859 at the Third National Quarantine and Sanitary Convention held in New York in that year. At the Convention of the previous year held in Baltimore a committee was appointed to prepare a draft of Sanitary Regulations for the City and State approval, and at the New York Convention the report was presented, discussed and recommended for adoption under the title of "The Sanitary Code for Cities." It was, as far as is known, the initial step in placing the sewerage, drainage and water supply of cities under the control of the Health authorities, and a few of its recommendatory clauses will suffice to show its comprehensiveness. In defining the different terms used in the draft, the following relating to sewerage and drainage occur:

"The term 'waste pipe' shall mean the pipe which discharges the waste water from within any house into the drain.

"The term 'drain' shall mean any drain of and used for the drainage of one building only * * * and made merely for the purpose of communicating therefrom with a cess-pool or other like receptacle for drainage or with a sewer into which the drainage of two or more buildings or premises occupied by different families is conveyed.

"The term 'sewer' shall mean and include sewers and drains of every description except (house) drains to which the word 'drain' interpreted as aforesaid applies."

The sections which bear directly on supervision of sanitary work are as follows:

Sec. IX. required all sewers, drains or waste pipes to be constructed under control of the Board of Health.

Sec. X. provided that the Board should have power to repair, alter, etc., any existing sewer or drain, to construct any new sewer or drain, or carry it to whatever point of discharge it deemed proper.

Sec. XIII. distinctly provided that all connection of waste pipe, sewer and drain with any public sewer should be alone made with consent and approval of the Board of Health.

The draft thus prepared was intended to be sent to the Governors of all the States and the Mayors of the principal cities, and it is probable that in the main it may have been the first step in the direction of sanitary supervision being so generally adopted as it is at the present.

The creation of the Health Department followed in a few years (1866), but it was not until 1881 that power was given to prescribe rules for the guidance of the plumbers in their work. Among the acts of the Legislature of that year was one (Chap. 450) which required that before the first of March, 1882, every master or journeyman plumber carrying on his trade in the City of New York under the rules laid down by the Board of Health should register his name and address at the Health Department in said city, without which registry it would not be lawful to carry on the trade of plumbing. The same act provided that the drainage and plumbing of all buildings, both public and private, erected after the 4th day of June in that year should have the sanitary work constructed in accordance with plans previously approved by the Board. These plans, showing the plumbing and drainage of the buildings, were required to be filed in the Health Department. The statute was not, however, retroactive in so far that it did not require that existing plumbing should be remodeled so as to make it conform to the new rule. All that was done in respect to the old buildings was merely permissive—"the said Board of Health was authorized to receive and place on file drawings and descriptions of the plumbing and drainage of buildings erected prior to the date" of the said law.

A reorganization of the Health Department followed the passage of the

act, and for the first time a code of rules governing the practice of plumbing was formulated and the plumber required to conform to its provisions. This code prescribed the manner in which the work was to be done, the main point of which was that it was to be subject, according as it progressed, to inspection by the inspectors of the Department. A revision of this plumbing code was found necessary in 1887, and under its present provisions the plumbing work in New York City is brought as near to perfection as it can be hoped ever to attain to, for at every stage and before any of it can be covered up the work is subject to a rigid supervision, and any departure from the plans or specifications is promptly reported in violation, notice of which is served on the owner, who is required to see that the defective work complained of is made to conform to the requirements of the plan and specifications and the rules of the Department. As a result, the tenements which have been erected within the past three or four years (that is dating back to the revision of the rules and the increase in the force of inspectors which, as already stated, occurred in 1887) have better plumbing and drainage than many of the Fifth avenue mansions erected prior to the improvement in plumbing work inaugurated by the Board of Health; and the standard set up for sanitary work in New York City is so far accepted by other cities that wherever a code of plumbing rules is established it is certain to be based on the rules of the New York Health Department.

WHAT SANITARY PLUMBING MEANS.

It may be asked, what are the requirements which a plumbing contract properly carried out should call for? They are many, of which the following may give an idea as being the main points. Commencing with the house connection with the main sewer in the street, the connecting or house branch should be laid with an even grade of at least one quarter of an inch from the building line to the sewer. If the earth be what is known as "made" or "filled-in" ground, earthen sewer pipe should not be used, but where the soil is a natural bed of loam, sand or rock, earthen pipe properly laid will answer every purpose. It should commence, however, at least two feet outside the building line, as it is not desirable that there should be a mass of either brick or stone work above the earthen pipe, in view of the danger of settling and the resulting breakage of the pipes. The joints of earthen pipe should be made with cement, and care should be taken that the interior should be a continuous smooth bore, free from danger of any portion of the cement being allowed to remain inside and prove an obstruction to the free flow of sewage. Iron pipe should be laid in case the soil is not a natural bed, or if it should happen to be wet or swampy.

The house drain, by which is meant the horizontal cellar drain, should be laid at least at the same grade as the house sewer, above the cellar bottom and along the cellar wall or ceiling if possible. Inside the front wall there should be a running trap at the point of connection of the house drain and the house sewer and a 4-inch fresh air inlet pipe leading to the outer air should connect with the cellar drain on the house side of the running trap aforesaid. The house drain should receive the contents of the upright soil and waste pipes through Y branches—that is, the connection of the vertical and horizontal pipes should be thus made and not by T openings as is often the case. The rain leader should be trapped at its base and made to discharge its contents through the house drain. There should be no fixtures in the cellar unless a water supplied sink, properly trapped and vented, to receive the discharge from safe and refrigerator waste pipes. When the iron pipes throughout the building are in position and the joints well caulked with oakum and lead, the openings or branches should be stopped and the entire system tested either by filling the lines to the roof with water or subjecting them to an air pressure test of not less than ten pounds to the square inch. If the cellar is liable to have surface water in it from any cause, rendering cellar drainage necessary, there may be a drain pipe laid from an opening at some

depressed point in the floor to the lowest point of the house drain (inside the main running trap) to carry off such surface water. This special drain pipe should have a running trap under grating in floor, and also between such trap and the point of connection with house drain there should be a flap-valve set to provide against sewage backing up to cellar in the event of any stoppage occurring in the running trap on house drain. A small sink sunk in cellar floor, the sides flanged over on concrete surface and water supplied, will be found better in practice than the perforated plate usually set in floor.

One point in connection with the laying of house drains should not be overlooked, viz., laying them straight, and where deviations must be made they should be done with bends or Y branches. "Broken joints," as known to the trade, should be avoided. The area drain pipes should be trapped and made to discharge into the house drain on the inlet or house side of the main running trap. Yard drains should also be trapped before connecting with house drain and the hand or cleaning hole of all cellar traps should be fitted with brass cleaning screws to facilitate the removal of obstructions and at the same time to keep them air and gas tight.

The iron pipe to be used throughout the building should be of the grade known as "extra heavy" and untarred at the time of placing in position. Each vertical line of soil or waste pipe should have a line of vent pipe of reduced calibre for the venting of the trap of the different fixtures; viz., a 5-inch line of soil pipe taking in several fixtures should have a 3-inch vent pipe, and for smaller lines a 2-inch vent pipe will be sufficient. All the vertical lines, both of soil, waste and vent pipe, should be carried through and at least 5 feet above the roof, the bore of each increased so as to provide for thorough aeration of the entire pipe system. No offsets through the roof should be permitted. Every fixture should be trapped and a connection made with the vertical vent pipe by means of a branch pipe taken from the crown of the trap so as to prevent siphonage. It is usual in kitchens where stationary tubs and sink are in a line adjoining each other to make the trap of the sink do duty for the tubs also by having the latter discharge on the inlet side of the trap. The waste pipes and trap for tubs and sink should not be less than 2 inches in diameter. The basins should all be trapped and the traps vented, and where the plumber has to supply the overflow, care should be taken that it is connected on the inlet side of the trap. The bath should not discharge into the water-closet trap, but there should be a separate opening in the soil pipe provided for receiving the bath and basin wastes. Water-closets (porcelain) having trap and bowl all in one piece and consequently above the floor should have a floor plate connection—that is, where the lead soil pipe is brought above the floor level, there should be a brass floor plate having a circular opening screwed to the floor, the lead waste pipe to be flanged over and soldered to the plate and the closet set over the plate with a cushion of red lead putty between closet and floor plate and the closet then bolted on through holes in the plate to the floor. By this arrangement the danger of sewer gas entering at the joint beyond the trap is provided against. Water-closets should be at all times flushed from cisterns capable of holding from three to four gallons of water, placed from 8 to 10 feet or more above the closet seat, and supplied with a flush pipe not less than an inch and a-quarter in diameter so as to discharge the contents of the cistern with such force as to completely empty the closet bowl and trap of the excremental matter. When a lead safe is used on the floor under the closet it should be so set as to drain all moisture or dripping directly into the safe waste pipe discharging into the cellar sink. As there are circumstances under which the water should be drawn out of a water-closet cistern by opening faucets on the floor below it is always advisable to place a check valve on the supply pipe to the cistern. This will not interfere with the water on its passage upwards to the cistern, but will prevent its return under the circumstances referred

to. Water-closets should not be flushed by means of valves from the water-supply pipe for domestic use. There should be a separate supply for the water-closet cisterns, so as to keep the water intended for domestic purposes in the completest manner free from all danger of pollution by connection with the water-closet in any manner. This has been overlooked in the past, as may readily be seen in old houses, but under the new order of things the ounce of prevention is infinitely preferred to the pound of cure, so frequently applied by the Board of Health. These specific rules embody in most part the essentials which go to make up the proper execution of a plumbing contract under the new *regime*. The old-time plumber, however, is not in accord with such advanced ideas, and he is consequently falling to the rear, while the young progressive craftsman is going to the front, equal to the altered conditions of the trade and fitting himself by acquaintance, with not only the improved methods of work, but with the theories which underlie the practice, is fast ceasing to be a mere worker in lead.

W. T.



CROSS-CURRENTS.

AN acquaintance of the Editor's said, not long since, with an air of profound conviction, "I like to take my literature in scraps." At this utterance of an irresponsible intelligence, we smiled inwardly, at the same time, however, expressing our gratification that he should "like to take" literature in any manner whatsoever. But later, upon turning over the pages of a current magazine, we understood that other editors appreciated the significance of the remark, if we did not; and we have since gathered that our acquaintance but expressed in an off-handed way the literary craving of a large part of the public. So we decided, in the belief that he was giving utterance to more than a personal peculiarity, to grant his application—for that is what the remark signified to one in our responsible position. We determined that our magazine, also, should have a department of essays in little, of literature in "scraps." We, too, shall compress large subjects into a small compass, and conversely give small matters a large significance.

To drop for a moment our editorial function, we will confess that these little essays seem to us to be very much in the nature of vanities—designed mainly to give a minimum of literature with a maximum of signature. In the good old days a magazine essay could stand on its own merits. When a reputable publication, whose editor was known to be responsible and intelligent, printed an article, that very fact was sufficient. The public had confidence in his judgment, in his ability to discriminate between personal crotchets and sound, stable generalizations. Their opinion thereof was not confused by a high-sounding name; but every article in the magazine was stamped with a like authority. The reader faced opinions, not mere signatures. This excellent practice has now been largely superseded by that of signed articles, the tendency of which is to give importance to a man rather than what a man says, and which directly abets a chaos of conflicting opinions begotten of individual shibboleths. The mind of the public is thus confused, and the editor, no longer a representative of the larger point of view, has become a mere seeker after celebrities. All this is vicious enough in connection with the long articles which constitute the proper stuff of a magazine; but such is the demand for names that magazines and periodicals must introduce departments of protracted paragraphs flowing from the easy pen of some literary oracle. It is a sorry state of things.

These little essays really amount to no more than signed irresponsible newspaper leaders; but there seems to be a demand for them, and that demand it is the duty of the Editor to supply. We are but servants of the public. All

"Others abide our question. Thou art free."

This will be a department of short essays. If they be not signed it is because we have found the right kind of a signature quite beyond our reach, and we have been able to supply the deficiency only by a pair of writers who consider themselves fortunate to get their names into the Directory or on the back of a cheque. They have solemnly asserted to us that they are perfectly familiar with the kind of essay needed. One of them has declared that, although in the honesty of his heart he cannot forge a great literary man's name, yet, through the readiness of his mind, he can make style and ideas to suit. As he is a rather testy person, we did no more than smile reprovingly at this bit of egotism, while we threw a sympathetic nod at the other contributor's modest disclaimer of any great intentions. We feel it but right, however, to assure our readers that they can depend upon our assistance in checking the vagaries to which the minds of mere persons are always subject, sometimes by adding points of view which their temper leaves unrecorded, sometimes by rigorously excluding a weak or

willful sentence or paragraph. So small are our expectations, however, that in closing we must ask the reader to pass only charitable criticisms, just as the reformed baronet in "Ruddygore" would cut up only respectable capers.—*Editor*.

Before putting pen to paper to say what I have to say about a department of this kind, I have insisted upon reading the Editor's introduction. I have also insisted upon some freedom of utterance at this important juncture; and therein the Master has grudgingly acquiesced. Let no one be deceived by his temporizingly twists, his airs of superiority, his assumption of station. Poor man! He cannot even sit down without falling into a "position of responsibility." Be assured that the last thing he wants is a contributor with a representative name. He is very jealous of what he calls his prerogatives, is this Editor. He knows very well that the "I" is the enemy of his queer, foolish "we," and that it is continually encroaching on the latter's sphere. He knows that the "we" is gradually ceasing to convey that vague sense of mightiness which formerly awed the reader into unsatisfied expectancy and dumb affirmation—something as the subject of an old-time monarchy was awed by the proud "we" of his sovereign. The king's "we" meant a state embodied in a person; the editor's "we," if it means anything, means public opinion embodied in a person. Both pretences are equally false and equally silly, for a man is never more than a man. But an editor always thinks that he is a function of some sort, and that in so being his pen becomes a wand which charms out of everything unlimited and most appropriate significance. Consequently the complete effacement of his functional self, which the perpetual signature entails, is most obnoxious. He is no longer autocrat; he is but minister, and scarcely that. I admit that he is Master under the present heading, and that I, who am of a hot and rebellious disposition, and my brother-contributor who is as meek as Moses, must submit to his harrying interference. It is well that he should ask for us the charity of the reader, because it is his shadow which baffles the free working of our minds and crushes the palpitating individuality of our styles. I have always believed, for instance, that editors were pretentious cheats, exploiting the public much as Oliver le Diable exploited Louis XI. Unto the world they pose as right royal counsellors; but in point of fact they do little more than shave the public, their king, and domineer over his worthier servants. This, I am sure, I could explain to the satisfaction of every impartial reader; but did I so attempt, the Editor, with ruthless pencil, would cross it all out, just as the editor of an English quarterly "killed" some of the most delightful portions of Lamb's delightful essay on Shakspeare. It is but my right, however, to caution the reader that, since the Editor assumes "responsibility," he must take the full measure of it. If ever my argument appears to halt, my style to lack lively vividness, my illustrations to want fullness and point, it is the Editor that is to blame—and this despite the fact that he can claim no merit for any positive quality. The blue pencil is a blighting thing to many a poor contributor; but it is also something of a boomerang. Together with a pair of shears (which are to him as the knife to the surgeon), a bottle of paste, a scratching pen, and airs of functional superiority, it constitutes the editorial stock in trade.

One other comment remains to be made. Since I am to write many of these essays, I may state that it is a great mistake to compare them in any way, except that of length, to the newspaper leader. The signature that is generally attached to them makes all the difference in the world. Being personal, they treat of subjects more varied, more distinctive and less inevitable than those which come within the ken of the editor of a daily journal. Being written by people who have a name, a mind and a style, they offer no points of analogy with the equally "scrappy" outgivings of those whose name is merged in some *World* or *Post*, whose mind is dominated, thwarted and clogged by a superimposed "policy," and whose style is debilitated by a tumid mentality, ignorance, bad atmosphere, bad traditions and the exigences of time and position. The conditions of daily journalistic work make men rather inhospitable than receptive, rather blunts than sharpens their sensibilities, rather coarsens than refines their appreciation of intellectual shades. This hardening of temper does not mean that they remain stationary in opinion. Journals change their editorial "convictions" just as they change their "bright" and "brainy" reporters; but the movement is more unconscious and derivative than conscious and original. Day in and day out the overwhelming element in their editorial columns is repetition, one of their files being possibly the dullest reading in the world. But when people with minds and styles repeat themselves, it is always with a difference, and a

difference that is rather temperamental and intellectual than merely temporal or circumstantial.

And yet I would not have it understood that I at all approve a department of this sort. While deeming it eminently desirable, for reasons well known to every "author," that everything which I write, should be read, and read carefully, widely and repeatedly, I must counsel the public to grant but small attention to similar departments in other magazines and periodicals. These essays in little—so neat, so prettily-plumed, so invitingly short, so delightfully readable—what are they? What do they *do?* Are they more than literary pastime for idle people? Do they not foster that spirit of easy trifling with great matters which inevitably accompanies a complete absorption in small matters? In them some pleasant little shade of truth gets the graces of the world and bows with hand on heart to a listless crowd. "Hear, hear," say they, "you are a handy fellow. Why didn't I think of that myself? But what is the price of Great Northern Fizzle?" And so the handy fellow passes away until the next publication day. They are easily written, easily read, and as easily forgotten; they dissipate the energies of good writers, and satisfy in the reader no more important need than does one of Bill Nye's terribly funny articles. Hence these departments become but counters, where over the great literary bankers pass their change to hasty customers who stop not even to count the items. Men of vast resources should not stoop to such petty business. Good credit ought to be reserved for time drafts.

This, I say, is a great pity, and it is a great shame. Here is this great modern world of ours making machine-men, almost as the scientist made his Frankenstein—from human entrails. The literature of knowledge is growing at such a rate that no man can keep the pace and be more than specialist. Meanwhile the literature of power, more than ever needed, is losing hold. The Philistines are swaggering around, with mouths open and chins high. They are twitting culture for being ornamental and pleasant play-work. They are saying the only good culture is rich culture, and that the Jay Goulds and Rothschilds are the "pillars of modern society." Sure, then, modern society must be a sorry thing and in sad need of worthier support. But those who should give this support give it not. They permit the bawling showmen, who amplify on the great girth of these pillars, full swing. Instead of devoting themselves steadily to the spread of the spirit of mental integrity and mental hospitality, they waste their precious time in dilating on "points of view" and other little bits of truth. They lack any true sense of the responsibilities of their craft; they lack reserve; they lack the disposition to make their work cumulative and persistent; they are willing to fritter away their time in aimless and profitless scribbling for periodicals.

"Points of view"—that is the common phrase for them; and it means a dangerous thing—one that is ever tending to be subversive of intellectual authority and responsibility. Each point of view is an idol of a kind, one among many, and though but a little thing, yet has neither friends nor enemies, but wanders a forlorn vagrant in the world of thought. There may be a thousand supplementary ideas that are crying to be placed alongside of it; there may be a thousand other ideas against which it ought to declare deadly war and vanquish in fair fight; but our point of view little recks. It is simply indifferent; it will neither strike out nor reach out. It is very comfortable where it is, can afford to put on airs and be slightly impertinent without assuming duties to any one but itself. Thus the world is chopped up into innumerable little bits of impression, and all organization and development are cast to the winds. In suggestive and discriminating minds an intellectual mosaic of some brilliancy and workmanship, perhaps, is the best result; but the weaklings have naught to show but a whimsical hodge-podge which, however, they delight to describe as eclecticism.

This is simply the pseudo-democracy of Rousseau turning up in the intellectual sphere. In his state each person was sovereign by fact of existence, and was not required to prove his right to life, liberty and the pursuit of happiness. So our "points of view" are justifications unto themselves. They are begotten by the predominance of the passive over the active intelligence. Time was when the merely receptive man took his untwistings of the many knotty world-problems from those bundles of authority and retrospect—the clergy; the native vagrancy of his intellect could be exercised only on the affairs of every-day life. The wise fathers, it has been said, sat heavily on mankind, and by dint of decapitation and the argument of fire kept all but a few in seeming concord of opinion. What Anselm, the maker of creeds, proclaimed abroad was the word of God and nothing less, and so the receptive man could go through the world with a little kit of latin phrases and with small bother; but now, alas! he has some work in merely being receptive. The new order to which the old has

yielded place substitutes the dominion of the many for the dominion of the one. The palace of Truth contains so many rooms that in a lifetime we can see but a few. The grand but irksome chant to which men paced with measured tread for dreary centuries has been succeeded by a medley of frisky airs, and if we would be in the fashion we must cut a merry caper to them all. The man of the present is often the intellectual prototype of the Yankee "notion" peddler—not in shrewd trading, but in the kind of goods he dispenses. His pack is an unconscionable jumble of cheap wares.

"There are two sides to every question," says he; and so saying, trots out his time-honored fable about the headstrong knights and the double-faced shield. One of the warriors, as we know, declared that the shield was golden, and the other that the shield was silver. Words became blows, and each struck so well that he wounded his enemy to death. Then too late they discovered that the shield was both gold and silver, and that each was right and each was wrong. The analogy has served a good turn in rebuking intellectual dogmatism, but it is a false analogy. The world is no double-faced thing; it has but one side, that of the golden truth. The trouble with the shield was that the gold obscured the silver, and the silver obscured the gold; the knights could have seen both faces only by straddling the emblem or jumping over to the other side. These are the courses which our so-called eclectics generally take; they are either trimmers or reach convictions through leaps and spasms, and if by any possibility the receptive man converts his philosophy of "notions" into theory of action or action itself he is either the skeptic or the crank. He is never cool, strong, steady and wise.

Sometime before Galileo was known, Plato declared that the earth—that is the world—was a sphere; because the world was perfect and a sphere was the type of perfection. We are frequently reminded that this is a vicious and utterly futile kind of reasoning; and doubtless so it is. But Plato was a master of spiritual verities, and in making a sphere the symbol of perfection, he was as right as a Greek can be. A sphere has but one true side, yet it has many sides also; and he who can distinguish or separate the one from the many must have a strange prismatic eye. The full sweep of the sphere is revealed to but one inner Person; and we mortals, who are mostly on the outside, find but a small part of the curve. We may be sure, however, that so far as it goes, our glance is true; and we have the consolation that it is ever seeing farther. So long as we remain mortals we may not see the whole; but we know that it is there, and we know that it is knowable. Our worst enemies are those who would break up this fair round of truth—revealed in its limited fullness only to the common reason of humanity—and setting up a parcel of little "points of view," declare that the world is made up of such small fry. Egypt is in danger of being smothered by a pest of these buzzing flies; and every one who can should strenuously and persistently maintain the integrity of reason. It is just here that lies the point of my quarrel with departments of this sort. They assist the spirit of exclusion in representing the world as a broken thing; and all the more effectively because they speak with the high authority of great names.—*Primus.*

MOORE'S GOTHIC ARCHITECTURE.

Development and Character of Gothic Architecture. By Charles Herbert Moore. With Illustrations. London and New York: Macmillan & Co. 1890.

Mr. Moore has performed a very valuable service for serious students of Gothic architecture, who have already expressed their acknowledgments to him in various prints. His view of the character of Gothic architecture is not essentially new. If it were it would be very unlikely to be true, so much research and acumen have been expended upon the subject within this century. It is indeed in general the view that every student must have taken who looks for a meaning in architectural forms. This class is not so large as one would suppose. Indeed, from the time that mediæval building ceased until within half a century, nobody seemed to imagine that Gothic forms meant anything more than the applied forms of the Renaissance, or seems to have imagined that the difference between them was anything more than a question of taste. That these forms were the logical and necessary expression of structural facts, and that in the development of them a keen artistic sense waited upon the evolution of mechanics, is really a very modern discovery. Horace Walpole was as far from making it in the eighteenth century when he built Strawberry Hill and fancied that he was reviving Gothic, as was Sir Christopher Wren in the seventeenth when he restored the west front of Westminster and fancied that he was reproducing Gothic, when he was merely showing that he had not the least notion of what it meant.

Of course we do not mean to derogate from the merits of this work in saying that the view is not essentially new, and has been anticipated in architectural literature among others, by Viollet-le-Duc among French writers, and by Dr. Whewell and Professor Willis, and in architectural works by the strongest among the Gothic revivalists of England, Germany and the United States. In one point Mr. Moore's contention is indeed quite novel, and that is in the showing, for it is a demonstration, that not only was France the birthplace of Gothic, but that there is no Gothic out of France, none, that is to say, which has not been directly inspired by French examples. Apart from this his merit is in the clearness with which he discerns and expounds the true principles of Gothic, and in the careful and wide research he has made in tracing the outcome of these principles in building. Alongside of this irrefutable proof such attempts as that of poor Mr. Fergusson, for example, to maintain the superiority of English Gothic and especially of "English vaulting" become merely ludicrous.

Mr. Moore's definition of Gothic, then, is "a system of construction in which vaulting on an independent system of ribs is sustained by piers and buttresses whose equilibrium is maintained by the opposing action of thrust and counter-thrust." This is the root of the matter, but this is a definition of Gothic structure, of Gothic engineering, so to speak, and not yet of Gothic architecture. It is conceivable that a building which answered this definition might yet not be a work of architecture at all. It is only when the constructor becomes also an artist and sets himself to expound and accentuate and decorate his construction that he becomes an architect and it a work of architecture. Mr. Moore goes on: "This system is adorned by sculpture whose motives are drawn from organic nature, conventionalized in obedience to architectural conditions, and governed by the appropriate forms established by ancient art" (we are not sure that we know what this last clause means) "supplemented by color design on opaque ground and more largely in glass." This is quite true, but the addition of this ornament to a Gothic structure does not yet make it Gothic architecture. It is in

the purely technical devices of functional modeling of the parts that the architecture consists, and a building so modeled throughout would be a work of architecture and of art without a single carved or painted ornament. Of course, Mr. Moore is quite aware of this. Nobody knows it better, and not many so well. But his language, while it does not mislead those advanced students to whom his book mainly appeals, might confuse beginners; and in matters of definition one cannot be too careful.

The cathedral, according to Mr. Moore, is not only the typical Gothic building, but it is in strictness the only Gothic building. That is to say, the full development of the buttress system, which is the skeleton and the structure of a Gothic building, involves a nave and aisles, the nave rising into a clerestory, the thrust of the vaults of which is met by the flying buttresses sprung over the roof of the aisles, while the ribs of the vaulting are foretold in the modeling of the compound-piers, together with the other structural features that radiate from these piers. A single-aisled building, even so fully developed otherwise as the Sainte Chapelle, is not a complete Gothic building. It is noticeable that in the summary of the form and feature of a Gothic building our author agrees with what we have been saying, for he does not include the ornament as a necessary part of it, while he does insist upon the architectural development of the structure, and the expression of all the members and their connections.

The body of the book consists in a detailed examination of the mediæval monuments of Europe, in order to ascertain how far they correspond to the author's definition of Gothic. The result is a most instructive and most interesting volume, in which the text is everywhere intelligent and acute, and is illustrated by drawings which are for the most part excellent for their purpose. There is no exposition of Gothic architecture extant so completely satisfactory, because there is none in which an equal intelligence has been brought to bear upon so wide a field. The careful reader must agree that he has made out his case that there is no Gothic but French Gothic, and that truly Gothic buildings in other countries have been inspired by French architecture.

Nothing could be more thorough or more satisfactory than the author's treatment of those buildings which he has personally examined, and this includes the mediæval buildings of all countries except Germany and Spain, which he explains that he has not visited. This is a pity, because, although Spanish Gothic in Spanish hands is weak on the logical side, and German Gothic in German hands is weak on the æsthetic side in comparison with that of the architectural "mother country," there is much in each that is worth study by such a student as Mr. Moore. His slight and disparaging treatment of German Gothic is, indeed, the chief blemish of his book. Granted that there is a hardness and stiffness about Cologne in comparison with the best French examples, a hardness and stiffness aggravated by the newness of the work; yet it is true that Gothic has never been better understood than by the architect of Cologne, who borrowed nothing without intelligent analysis, and who availed himself to the full of his privilege in coming after the French masters, insomuch that his work must be accepted as logically the most typical specimen in the world of the style, the "norm" of Gothic architecture as the Parthenon is of Grecian architecture. Moreover, one peculiarity of German Gothic which Mr. Moore regards, too carelessly, as a corruption is in truth a logical development, and that is the frequent stopping of the conoids of the vaulting of the aisles upon corbels instead of upon vaulting shafts. As a matter of fact, the pressure, unless it be a resultant of two pressures, is not vertical but outward and this fact is expressed in this arrangement, and denied where a vaulting shaft is continued to the floor.

The strength of the book is its analysis of French and English pointed architecture, for it did not need our author's acuteness to prove that there was, properly speaking, no Gothic in Italy. The analysis has never been done before so intelligently or so dispassionately, and it confirms and fortifies the conclusions already reached by intelligent and dispassionate students who have to thank Mr. Moore for having produced a very instructive and valuable book.

RAYMOND LEE.

PART I.—THE QUESTION ASKED.—IN ENGLAND.

CHAPTER I.

FIRST of all, I must tell you something about the Rev. John Fargus.

He was at the height of his fame; certainly the most influential priest at the time in the Church of England. The Public, already, had fully accepted him as one of its Teachers, which, in this case, does not mean that he was a charlatan: nor, of course, that people really learned anything from him. No doubt a few did, for the man had—no, not power—gentleness, a power etherealized, which though it did not coerce, nor make itself felt in the brutal and sordidly purposeful struggle of the World, was subtlely, persuasively potent in those quiet moments which once in a while like angels come to all of us.

That Sunday he had preached, to a congregation even larger than usual, from the text, "Blessed are the pure in heart for they shall see God." I give you the verse because it held as in a golden vase the spirit of his theology. He had little love for formal religion, damnation, and a narrow road to Heaven; and, on the Sunday of which I am speaking, he had striven that nothing might be lost to his hearers of the hope and comfort of the Divine promise—surely the most gracious and the most human ever given to man. I know that to many that heard him it was very sweet to be called back to the simple way and to find still blooming, fragrant as of old, flowers they had thought were long ago withered or dead.

John Fargus was not one of those who use their emotion as an economical housewife does a candle. The glow was still in his heart; the light was still in his eyes when he knocked at the door of his own house. It was the centre one of a row of five. A speculative builder had embodied within them his æsthetic ideas and a limited amount of capital—and the atmosphere of London had done the rest. John Fargus' was the most dismal of them all. About the others there was a grimly-respectable, commonplace air, a sort of shopkeeper refinement which I believe is

the peculiar possession of a certain class of English tradesmen: his had the appearance of shabby desolation. The windows were stained with dust and rain, the three stone steps before the door were greenish, and the name-plate was covered with verdigris. Some houses, like some men, carry the appearance of having failed in life; and the clergyman's was one of these.

After he had knocked, John Fargus waited rather longer than usual before he was answered. Then the door was opened about half a foot by a fat, slovenly creature in a red petticoat who looked like a jailer. Her sleeves were rolled up to her shoulders displaying a pair of enormous coarse arms. She was graced with a very conspicuous black mustache. It was evident that she was prepared for battle, and that any one but the master of the house would have been regarded at that moment as a hostile intruder.

"Oh, I'm glad yer come at last, sir," she exclaimed.

"Why, what's the matter, Mrs. Peace, what's the matter?" asked the clergyman, hurrying along the hall. The woman followed him, shaking her head and her hands dolefully.

"The misses has broken out wuss, sir; dear! oh dear! and the doctor 'as only just left her, sir."

"Where is she?"

"Upstairs, sir."

"In bed?"

"Oh! no, sir. She's a wanderin' about the 'ouse, quite quietlike, sir; but a-hacting so strange. Doctor said not to contrary her. The nuss is keepin' her from 'arm. Poor crittur! God help us poor worms."

A door at the end of the hallway opened, and Mrs. Fargus, attended by a woman, appeared on the threshold. She was dressed in a shining black mackintosh. A pair of rubber overshoes were on her bare feet and an old high silk hat on her head. Her hair was curled fantastically in long ringlets. Even without this grotesque costume the look in the woman's eyes was sufficient to tell she was insane.

For a second, at the first sight of his wife, the husband shrank back dismayed; then he hurried forward to her:

"Mary!"

A loud ringing laugh greeted him.

"She's dead, your Eminence; food for worms. Eh? and now the King grows tired of Anne. They say he will apply again to the executioner for a divorce; a more pliant authority than Rome. Well, let him. Ha ha!"

John Fargus covered his face with his hands.

"Don't weep, Cardinal. Don't. Tears are for women. I

thank you for your pity, from my heart I do. Give him the divorce. Why not? We should make buttons of our beliefs to fasten on us the silk of a rich benefice. Tell that to the King and watch his fat sides shake. Ha ha! I am going for a canter now with Lady Elizabeth, the future queen. Prepare the papers sir; I will subscribe to anything; we will sign them on our return."

She swept past her husband to the front door, followed by the nurse. The clergyman was about to intercept her; but the nurse whispered:

"No, sir. Don't."

The demented woman endeavored to open the door, but it had been locked when Mr. Fargus entered and the key removed.

"Your Highness," said the nurse, softly, "the horses, you know, never come to this door, only the servants."

Mrs. Fargus looked at her for a minute searchingly, questioning her words with the perverted intelligence often shown by mad people. The stolid countenance of the nurse assured her.

"My careful Elizabeth," she exclaimed, laughing. "The world! the world! Yes, we must be careful; lie to it with our lives as well as our lips. It stings," she hissed; "enforces its code of propriety better than God does his commandments. Cardinal," she added, "tell me, did God write those commandments? But how foolish of me to expect candor from an ecclesiastic. Your face, Cardinal, recalls a man I have met somewhere. Let me see; where was it?"

She paused to think.

"No," she muttered to herself, "not there. Where? where? Dear me," she continued aloud, "I have a bad memory; but it doesn't matter much. He was an honest fellow; a priest. He did believe—at least, it seemed to me he did believe, though perhaps he may have been merely subtle. No; I'm wrong; he was good. Do you know, Cardinal, we can be too good, as the world goes; good to our own hurt, until we are a ball for others to kick. Beware! Cardinal. Don't *you* fail. Follow me, Elizabeth, I've some writing to do."

The poor creature ascended the stairs. The nurse followed; and, bending over the balusters, she whispered to Mr. Fargus:

"Don't follow, sir. I think she will sleep now. Dr. Hoadley will be here at six."

The mad woman heard the whisper.

"Ah, Elizabeth," she said, archly, "making love to the Cardinal, eh? For shame! And a maiden, too. You will make him blush as scarlet as his robe. But I am afraid his Eminence is used to dallying in forbidden places. Eh, Cardinal? Have you never

confessed anything besides your holy sins? Come Elizabeth, come. I think I must keep guard over you. The world loves to pluck such dainty flowers. I am withered you see—withered, I think, prematurely."

When the clergyman stood alone, he cried:

"Oh God, give me light that I may see Thee in this!"

He entered the library, sat down at a big cumbersome desk, and, with his face buried in his arms, wept. A ray of foggy sunshine stole into the room, ran along the ink-stained carpet and terminated amid the cold ashes in the fireplace. The stillness of the house awakened the clock on the mantelpiece, and it commenced to cry very loudly in a jerky way: "Ha ha! Ha ha! Ha ha!" The canary in the window was aroused and joined its piercing song to the clock's monotonous tale.

Before the clergyman lifted his head from the desk, the daylight had faded; the objects in the room had become like black shadows; the canary had fallen asleep, and the clock was in full possession of the silence. It continued its tale. What had it to do with the anguish in tortured hearts? Nothing in all the range of human life could add another note to its pitiless story.

John Fargus lit the gas and began to pace up and down the room. Old emotions were struggling against his new misfortune like a wounded bird beating against the bars of its cage. Many times he ran his fingers through his long disheveled sandy hair, and lifted his hands as though in supplication for help. Suddenly he caught sight of an album on a side-table and opened it eagerly—at times there are things we grasp more hungrily than a miser does gold—at a page which contained a portrait of a young girl—his wife before he married her. He removed the picture from the leaf with a gentleness that was worship. Oh, the tyranny of old memories! Who has not felt it? John Fargus kissed the portrait: instead of replacing it in the album, he put it within the leaves of his Bible.

As he placed the book softly on the table he perceived two unopened letters which he had brushed away from him unobserved with the litter of papers when he first sat down. One was in a woman's handwriting. Here are the contents:

"My Dear John:

"It seems I must worry you, but I cannot, cannot endure this place longer despite all you have said. I am convinced only while you are with me. Let me hide myself and my baby anywhere. I am sure it is best to do so. Help me. Come to see me soon."

The letter was signed "Janet."

The other letter ran:

"DEAR JOHN:

"We are off, or rather will be to-morrow before you are out of bed. We inspected the *Aden* this morning. She is a fine ship. We find that we have a very comfortable cabin, so that if Neptune will only pity a certain weakness of ours and not sport with us too savagely we shall have a pleasant voyage. We ought to be in Calcutta by the 14th of next month, and will start up country at once in order that Marian may not feel the climate too severely. She is smiling at me now from her little cot. If she could speak I am sure she would join with me in this good-bye to her godfather. I will write as soon as we touch shore. At the eleventh hour Alice is out shopping—the ability of women in this direction is amazing to me—so I suppose we will go aboard with a score or more of paper parcels poorly fastened, all possessed with persistent centrifugal tendencies. She told me to give you her love and say that she will write surely before we sail, which, let me add by way of parenthesis, is barely possible. Good-bye, old man. Be sure that absence will not touch my affection for you."

This letter was signed "Herbert Pilgrim."

Of course it was from absent-mindedness: John Fargus mechanically pinned these two letters together as though they were in some way related and dropped them into a drawer.

Then the hall bell rang, and Mrs. Peace admitted Dr. Hoadley. When the physician departed half an hour later John Fargus knew his wife was hopelessly insane.

CHAPTER II.

I CANNOT find "Smugglers' Cove" in any atlas that I have consulted, nor is it in the gazetteer. It may be I have failed because in these days even geography is commercial and interests itself chiefly in towns "noted for tanneries," "extensive carpet factories" or "large sulphuric acid works that give employment to three thousand hands." However, the omissions are of no importance to the reader. Any one who has sailed southward from Seahaven will remember that about ten miles from that port the high cliffs of chalk run abruptly inland and form a narrow bay or creek like the letter U. Into it the waters of the English Channel tumble, and, breaking upon the seaweed-covered rocks, roll in foam high up the yellow shingle beach. This little bay is named the Smugglers' Cove, and stories are still told of the great things done there by a more vigorous generation than ours in the good old

times of King George III. and high duties. At present, smuggling is carried on elsewhere, and is practiced, I believe, in a different manner.

To-day, on the beach, in the central curve of the U there is a low whitewashed building with a flag-pole in front of it where usually a coast-guard is to be seen scanning through a long telescope the ships which sail by on the horizon like white shadows. Up the face of the cliff a very steep zigzag road winds to a cluster of little thatched-roof cottages — these constitute the village of Saint Michael's. They say the hamlet took its name before the days of Henry VIII. from a monastery which stood on the very point of the southernmost promontory of the cliffs. Indeed, some of the ruins of the building remain to this day—a few stones of the foundation and walls and parts of some of the traceried arches. The wind and the birds hold service there now, but the villagers declare that at night they have seen priests in lurid vestments and flaring eyes performing mass amid the ruins, and as evidence of how true the story is they declare that even the odors from the ghostly censors have been wafted to the village.

Making a guess, I don't think there are more than two score of cottages in St. Michael's, and this computation, includes the blacksmith's forge, a small two-story brick house.... all the others are built of rounded flint stones.... the "Ship".... where there gathers at evening-time such a jolly crew under a captain so liberal with grog and so exact in his reckoning.... and the few little shops which stand on the road that runs out of the village and winds up and down the hills to Seahaven, where our interest in it ends. All the inhabitants of St. Michael's are fisher-folk—people who know very little of the "great world" where there are sanitary improvements and a fever in every man's soul. The natives often speak of their village as the "nest on the cliff." There is a Sabbath peace there always, filled with the voices and the odors of the sea; and, as far as my experience runs, the only trouble the hamlet knows is when the earth in the graveyard is opened afresh or the sea refuses to return the mariner that went forth.

It has been discovered that in a little town a reputation is inevitable. Everyone is a public character, and Fame, which in cities is a great tree that stands out boldly in the light of day and casts a shadow—and some coldness—upon other men, is in villages like St. Michael's a lichen which fastens itself even in the most inaccessible places. However, there was nothing inaccessible about Joe Slagg's character. Long ago the wit and the satire of

the village had made free companionship with it, and had discovered that his identity accorded better with the title "Fine Moral Joe" than with his actual cognomen; so there had been a slow rechristening whereby the fitness of things had been recognized. But that was long ago, and in time wit, like other things, grows old and wizen and can only grimace instead of smile, and satire without teeth is of small account. Joe Slagg remained of the same nature as ever, but to the villagers his nickname had no longer a caustic suggestiveness. It had become symbolic instead of descriptive.

A few days—to be exact, three days—after the Sunday spoken of, St. Michael's was shrouded in a thick sea-fog. It was so dense that, looking downward from the cliffs, neither the beach nor the sea was visible. Joe Slagg was shuffling about his forge in slippers; a dirty, untidy-looking man, with a beard that grew like a fringe around his face and under his chin. Everything was out of joint with him that morning. The forge-fire wouldn't burn, and after the manner of men he was stamping furious.

"Blow, blow, will you," he cried, jerking the bellows savagely. "No you won't, d—n you, no you won't. But if you've got a spirit, so 've I."

A lad emerged out of the mist and stood at the forge door. There are times when it is so easy to offend.

"What are you looking at?" cried the blacksmith, dropping the bellow's handle.

"Nothing, Mr. Slagg."

Oh, it's you, is it. Didn't see you. Did Zipcy start this morning?"

"Yes, Mr. Slagg."

"Come here.... what! you've been a cryin', and what's worse puttin' your woe in mourning, wipin' yer eyes with dirty 'ands. Who licked yer?"

"Uncle."

"Zipcy did, eh. What for?"

"'Cause I hadn't done my 'rithmetic."

"Zips right, damn-me."

Joe Slagg was recovering his equanimity. Things had gone wrong with some one else that morning.

"Take a 'and at the bellers there, will yer, while I fill a pipe. Tell me how do yer think yer going to get through Life without 'rithmetic. It's one of the fundaments. What's the difference between Zip and the 'osses he drives, I'd like to know? Why, he can put two and two together, and they can't. All Life's a putting two and two together. You're uncle and me's the only two in the village as can do it."

Greatness is not without its grief: the little man sighed.

"That comes from having lived in Lunnon," he continued. "I know Zip wants ter make a man of yer, he does. He doesn't want yer to drive bus for seventeen years between 'ere and Seahaven as he has. You ought to be ashamed of yourself. Pull slow on those bellers. I'm blowed if that fire aint burning now, just because I've sat down."

The old man put some rough iron-work into the flame-spot on the forge and resuming his seat on the edge of an old box, puffed thoughtfully at his short clay pipe. Joe's two special weaknesses took the shape of a repugnance for physical labor and a love for speculating (in the hearing of others) about "Life." In these respects Joe Slagg, blacksmith, is not singular. Everywhere it may be noted that there is some relation between these two traits of character.

"Pull away, lad; what yer doin' now, mark yer, is like everything else in Life. The iron 's got to be 'ot first, red 'ot. Then strike, as the sayin' is. Arf the world, ay more'n arf, spend their time 'ammering of cold iron. Only there's this about Life, we can't make the fire ourselves. Chance does that. In a way, Will, you're actin' like Chance now, and by and by you'll see me get up and do something with that iron."

"What's it for?" the boy asked.

"Tom Borrough's boat. 'E wrenched the rudder-irons off on the beach the other day. And that means we've got to do good work, Will; for we can scamp on land and cheat and mebbe it will never be found out, but the sea tests everything, I tell yer, and brings to naught all that ain't done with a strong 'and. When the Sally.... Who's that?"

Slagg and the boy were at the door in an instant; for the sound of wheels at midday in St. Michael's is a matter more startling than it is easy for any one who does not know St. Michael's to comprehend. The fog was like a thick veil before their eyes. They could see nothing; still the rumble of the wheels grew louder. Joe Slagg and the boy started in the direction of the sound. It stopped: they stopped—within a few paces of the little brick cottage, the last of all the buildings on the road out of Seahaven.

"May I be drowned, Will, if it isn't yer uncle Zip, and"—some one stepped out of the old 'bus—"Mr. Fargus."

"Who's he?"

"To be sure, he was before your time. He was clergyman 'ere years ago, him as got us to build the church, with our own 'ands mind, and he worked hisself with us. He lived in the cot-

tage. It's 'is. But he went to London and Zip says he's got a big church now, and everybody knows him."

Then Joe Slagg hurried away, for he had news for the village.

A narrow walk of brick divided into two equal parts the garden in front of "The cottage," for in St. Michael's this very modest dwelling had appropriated the definite article. After alighting from the 'bus John Fargus hurried up the pathway followed by the driver. Ah, a bitter little man was this Zipcy, wizen-faced like a shrivelled apple, with quick, black ferret-eyes and a nature that was all edge. Everyone said that by daubery or some chemical process Zipcy's blood had been turned into vinegar and that that accounted for his acridity. In front of the cottage door was a lattice porch with a wooden bench at both sides of it. John Fargus sat down while Zipcy kneeling on the ground with a bunch of rusty keys endeavored to fit one into the lock.

"It was very stupid of me to come away without the key," said the clergyman, apologetically, "but it's only a matter of size, Zipcy. I know that lock. Joe Slagg made it."

Zipcy only grunted as he inserted another key into the hole. This one fitted and the lock turned.

"You see, Zipcy, even a bad lock has it's advantages."

But the door wouldn't open. It had been shut so long that it had jammed fast.

"It has no welcome for us, Zipcy, old friends as we are," said the clergyman. "It's like the human heart which neglect has fastened."

Zipcy pushed the door and pummelled it and threw his weight against it without avail—but then there was not more strength in Zipcy's whole body than in many a man's single arm. John Fargus added his force to Zipcy's, and with the combined effort of the two the door burst open and both were precipitated into the hall.

The little 'bus driver slowly picked up himself and his keys. The clergyman opened the door to the right of the hall—opened it wide—but, instead of entering the room, stood on the threshold and as though a momentary dizziness had overcome him, leaned for support against the jamb.

"Anything wrong?" laconically asked Zipcy, after a while.

The question aroused the clergyman.

"No, Zipcy, no. Nothing. Old memories rose up too suddenly."

The room was thick with dust and cobwebs, and the air had a mouldy smell.

"It's twelve years since I was in this room last," said the clergyman crossing to the window. "Twelve years. It seems like yesterday; as though there was something before me that I can put out my hand to but cannot quite touch."

After a pause he wheeled around quickly.

"Do you feel you have changed much, Zipcy?"

Zipcy change? Ha! A faint smile passed over Zipcy's face. He averted his eyes from his questioner's, and changed his position awkwardly, for Zipcy couldn't bear a steady gaze.

"No, sir, not much," he said.

"You don't feel you have gained or lost anything?"

No. Of course not. The road to Seahaven had not changed and Zipcy's life stretched along it.

A long silence followed. John Fargus gazed out of the window. Before his eyes the fog rolled away....though Zipcy couldn't see it do so....sunshine filled the valley beyond, and in the air there were voices, and in the heart—the pain which men call the Past.

"Zipcy, I wonder whether this place can be made habitable?" asked the clergyman. "It is very dilapidated."

Zipcy thought it could; that any house could that was wind and water tight, which the cottage was.

"But....Mrs.....Lee (Zipcy's eyes glistened, and he noticed the hesitancy) has been used to the comforts of London and I fear she will find the accommodations here very meagre."

Zipcy would like to have asked: Then why does she come here? But every thought may not be spoken. He cast his eyes around the room as though inspecting it.

The clergyman continued, but now he was thinking aloud:

"It will be very lonely here."

Zipcy was interested in the subject and he said shyly:

"But the lady will go to London, sir, often, and the change will be pleasant."

John Fargus said slowly:

"I am afraid she will not. Mrs. Lee has suffered a great loss, and—does not like London."

"Has she no children, sir?"

"Oh, yes; a boy; but he is a baby, only three years old. However, Zipcy, we must do the best we can. We will see what can be done to this old place. I will send the workmen from Seahaven, and when the furniture comes—by the way, who can we get to put it in order?"

"There's Mrs. Slagg, she was housemaid in London before she met Joe."

"Yes. That is so, Zipcy. Will you ask her to come to me while I go over the house? We have very little time, for I must be in London this evening."

By and by, when John Fargus came out of the cottage with Zipcy and Mrs. Slagg, a number of the villagers were waiting at the gate to greet him.

"How do you do, sir?" cried a dozen voices at once; and the clergyman was soon hemmed in by a little crowd, which testified very plainly its affection for him.

"You remember Mary Bryan, don't you, Mr. Fargus?" cried a buxom woman, edging her way through the throng and seizing the clergyman's hand. Before her she pushed two little children, who held shyly on to her dress, and a third she carried in her arms.

"Mary Bryan," exclaimed Mr. Fargus. "Well, well, yes, I remember; the shyest maiden in Saint Michael's."

All present laughed at this.

"Time brings great changes, doesn't it, Mary? It is not easy for old friends to recognize you with these around you," he said, pointing to the children.

The woman smiled, and the children clung closer to their mother.

"Now that you have come back to us, Mr. Fargus, won't you christen my Johnnie? I don't think it was done right with these two, they have ailed so ever since."

"Oh, you must not say that, it is not so; but I will christen Johnnie for you," said he, patting the child's head; "though," he continued, "I have not come back to stay with you."

Instantly he read disappointment in their faces and recognized a slight shrinking back, an increasing of the distance between him and them.

"I am sorry," he said, "that I cannot return to you just now. By and by I may; but I will see you oftener in the future now, for a dear friend of mine is coming to live in the cottage. I must be off, for the train at Seahaven won't wait for me, you know. Come, Zipcy. Good-by to you all—for a short time."

While Zipcy was mounting to his seat and wrapping an old blanket in many folds around his thin legs, the villagers crowded to the 'bus door and continued to wave their good-bys until the jolting vehicle passed out of sight at the bottom of the hill.

Then the villagers took Mrs. Lee into their consideration and fashioned her after their own hearts. At least a dozen different conceptions of her were current and they warred with one another.

Everybody said that Zipcy could set matters aright for hadn't he seen Mrs. Lee and didn't he know how wealthy she was and the reason why she was coming to St. Michael's. And Zipcy, being a wise man, said nothing, but shook his head knowingly. "Trust Zipcy for keeping a secret, tight-mouthed little devil," said the Village. And Zipcy was trusted implicitly, and for a time people were curious about him—which is fame or no inconsiderable part of it.

Zipcy played sphinx for a fortnight then put on his best suit of black clothes and set out with the 'bus for Seahaven to fetch Mrs. Lee and whoever was with her. He felt the importance of his mission. He knew the eyes of the village were upon him.

"About what time will you be back, Zipcy" asked Mrs. Slagg as the 'bus was starting.

"Six o'clock," said Zipcy, shortly, as though he had fully settled that matter.

But, at six o'clock Zipcy had not returned. Joe Slagg had just finished gathering the straw which had been blown over the garden from the furniture van, and his wife had put the finishing touches to the room, poked the fire and lit the lamp on the table where the tea things were set.

"Everything looks well, doesn't it, Joe?" said Mrs. Slagg approvingly.

"Yes," said her husband. "Fust rate."

The room indeed looked cosey. The light of the lamp fell upon the white table-cloth and the bright tea things, and the fire threw a ruddy glow on the warm-colored hearth rug and flickered on the polished furniture. A few water-colored paintings were on the walls, a small cottage-piano stood at one side of the room, and in the little bow window draped with dark curtains was a stand of flowers which Zipcy had brought from Seahaven.

"All this must have cost a deal of money," said Joe Slagg, looking around. In his eyes, everything was most rich and elegant.

"It is only ordinary," said his wife; "nothing to what real rich folks has. But it is all new," she added, conceding something. "There is not an old thing in the place."

The clock on the mantel-piece struck seven; still Zipcy had not returned. Joe Slagg went out to the gate and looked down the Seahaven road. The dusk lay like a purple mist on the hills. In the West a faint tinge of watery-yellow marked where the sun had set. The voices of children playing lingered in the air and the villagers stood in knots along Main Street. Everybody was

awaiting the arrival of the 'bus. The door of the cottage was open and the light fell along the garden walk.

"Zipcy's late," said a bystander in the darkness.

"Yes," said Slagg, "more than an hour."

A minute later the sound of wheels was heard.

Slagg ran to the door of the cottage and cried: "Emma, here they are," then hurried out to the gate.

The villagers had gathered as close to the gateway as they could without being too obtrusive. They saw Joe Slagg open the door and assist to alight a lady dressed in black and heavily veiled. She carried, pressed to her breast, a sleeping child. A tall woman leading a little dog and laden with a number of parcels followed. The two hurried up the garden path to the door where Mrs. Slagg stood. It closed, and all was in darkness.

On entering the room where the tea was laid, Mrs. Lee, without saying a word, sank into the arm-chair which her servant, a tall, angular, muscular Scotch woman, drew up in front of the fire. She leaned back in it as though exhausted, a black veil still covering her face. After a moment she aroused herself, threw back the veil and allowed Mrs. Stewart, the Scotch woman, to remove her bonnet. Then she bent down to the baby sleeping in her arms and kissed it passionately many times.

Joe Slagg and his wife looked on without speaking. Mrs. Stewart noticed the couple, and said, approaching them:

"Good people, there's na necessity for ye to bide any longer." At the sound of the voice Mrs. Lee looked up. A smile passed over her face as she caught sight of the Slaggs.

"I know of your kindness," she said softly. "I cannot thank you now as I want to. You must be very tired, you have done so much for me. Come to see me to-morrow. I shall feel better then."

The kindly tone in which this was said confused the two villagers. They both muttered, "You are very welcome, ma'am," and departed.

"Ye'll have some tea, child," said the Scotch woman, when the two had left.

"Yes, Kate, I will; but nothing to eat. I have no appetite."

While the tea was preparing she lay back in the chair watching her baby. At times she gazed at the fire, and the look in her eyes told that her thoughts were wandering. More than once she returned to herself suddenly, with a shudder, and folded the sleeping boy closer to her breast, and kissed him.

"Here is your tea," said the Scotch woman. "Give me the baby while you eat."

"No, leave him with me, Kate. I feel to-night I cannot part with him even for an instant. I live with his life, not mine."

"Isn't this a cosey little place?" said the Scotch woman, cheerfully, endeavoring to change the current of thought.

"Yes," said Mrs. Lee, looking around. Hitherto she had not noticed anything. "But, Kate, it will be lonely for you. It is wrong of me to allow you to come with me."

"Tut, tut, I am best judge o' that."

This was said decisively, for the Scotch woman's nature was hard, and her affection for Mrs. Lee expressed itself chiefly in unflinching service.

"It is good of you, but...."

"There's na but. What would an ugly woman like me do without a relation living? I'd soon be in the kirk yard, surely. Na, na, I will bide by ye. That's ma place. We're going to be happy now, and forget a'. The past is done with. Dinna forget what ye said to me at the hotel."

"No, Kate, I won't; I must do so for the boy's sake. I will go to bed now."

When the child was undressed, she put out the candle, and raised the blinds, so that the faint light of the night came into her room. She knelt down at the side of the bed and stretched her clasped hands over the sleeping boy. Then, with her head buried in the counterpane, the Past took possession of her, and she wept bitterly. For more than an hour she knelt, until grief had spent itself. A movement of the child's aroused her. She put her face on the pillow, with her lips to his cheek, and Love whispered to her until she was overwrought with a vague feeling she did not comprehend. She arose, and with eyes and hands eagerly uplifted to heaven, prayed that whatever blessing the loving-kindness of God might have in store for her, it might descend upon her child. But the prayer was not put into words: it was uttered in an instant. It rose from her soul like an overpowering ecstacy; and after it came peace.

Out in the village they were saying: "She's a real lady," and some envied her.

To be continued.

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The

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ARCHITECTURAL ABERRATIONS.*

No. 1.—THE EDISON BUILDING.

DANGER lurks in the superlative degree. Of each of how many things is one tempted to say that it is the best or the worst of its kind, when he meets another thing of the kind that makes him congratulate himself that he did not yield to the temptation or repent that he did. Bearing this in mind, we shall not say that the Edison building in Broad street is the worst building in New York, or the worst commercial building in New York, or even the worst of recent commercial buildings in New York. We will content ourselves with saying what can be established beyond dispute and what "jumps to the eyes" in the contemplation of it, and that is, that it is of a very eminent badness.

In the first place it has no composition. There are six stories and they are set one upon the other, but they have no architectural relation one to another. The second, for example, is much solider than the first, and the fifth is the plainest of all. There is a basement, and it is a basement of two stories. This is proved by the fact that it is built of a different material than the other stories, for these two stories are of a bluish-gray limestone, or marble, while the stories above are of brown brick, with "trimmings" (the milliner's term is quite applicable here) of cream-colored terra cotta. But, then, these two stories do not constitute a basement in an architectural sense. If they did they would be united in treatment and divided from the superstructure. As a matter of fact, the first is divided from the second much more emphatically than the second is divided from what is above. The first consists of three columns, loosely Roman Doric, banded and set against square piers, while the lateral piers are left unadorned, making the feature "tristyle in antis." The detail is well enough, being such as any draughtsman knows where to get and how to copy. So far so good. But in the intercolumniation there is sprung from pier to pier a flat arch of which the voussoirs are treated with a ferocious vigor, as if they were meant to carry a great wall. In fact they carry nothing at all but themselves, for the columns sustain a heavy entablature, and this truculent

*We are making a collection of "Aberrations," and shall present one to our readers in each number of THE ARCHITECTURAL RECORD.

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arrangement of flat arches is nothing but the top of the sash frame. The entablature shows a heavily-moulded cornice of considerable projection which separates this story from that above. This second story is not bad in itself, though not particularly good either, and by its severity is much more appropriate as a basement than the very much overdone story below. But above this is a projecting course much narrower, much less heavily moulded, and of much less projection than the cornice below, so that, except for the change of material, the basement is much less sharply divided from the superstructure than one story of the basement is divided from the other. Moreover, this narrow course is the footing, the stylobate, for the large order that runs through the next two stories, and an absurdly inadequate footing it is, and looks particularly absurd when it is compared with the heavy entablature of the order, to which, in educated classic design, it is always proportionate. The cornice of this entablature has more projection than anything else in the front, and the entablature is the most emphatic horizontal member of the building. There are two stories above and three below, counting the order as a single story, so that the pleasant effect of this feature is to cut the building in two in the middle. Upon the whole, however, the disposition of this order is more rational than that below, for the order appears as the structure and the wall inclosed as a mere screen. The pediments of the lower included story do not, like the flat arches of the basement, pretend to be doing work or to be anything but window-tops. To be sure, the wall would have looked better if they had been left off, but one may say that of pretty much everything in the building. The order would have been much improved if its shafts had been monoliths, for it is simply degraded when they are built up in rounded bricks, and violence thus done to that respectable building material, while it is burlesqued by the ridiculous quarter columns that peer out from behind the piers that form the antæ of the order. Then comes a plain story of arches turned between pilasters. The arches are thin and weak, and the pilasters flat and feeble. Comparatively plain as this story is, there are too many things in it, and all the things are bad. The pilasters, for instance, might have been omitted with much advantage. They are too shallow to account even for the little shelf of a cornice they carry. This is, in fact, the main cornice of the building, and it is more important in function and less important in treatment than any other belting course in the building, excepting only the course that divides the basement from the superstructure, which is the next most important in function and the next most unimportant in design. So far as any principle of design can be detected in the front, indeed, it is to emphasize what is subordinate and to slur what is principal. The thin shelf which is the crowning member of the wall is even more conspicuously inadequate as a footing for the range of dormers it carries than the shelf at the top of the basement as a footing for the great order. In these dormers the designer lets himself quite loose and breaks out in such a riotous orgy of "things" as does not disgrace any other recent building we recall. The detached columns that carry the lintels of the dormers and their superincumbent bulls'-eyes have an aspect at once of feebleness and swagger that is highly exasperating, while the treatment of the parapet wall between them is more exasperating still. Between each pair of dormers stands a niche covered with an arch, of which the voussoirs are long thin tiles of terra cotta in two tints, and in each stands a tear-bottle—positively a terra cotta tear-bottle six or seven feet high. What all this stuff has to do with the Edison building is as inconceivable as what it has to do with the art of architecture. The aspect of the building is calculated to make the judicious grieve very deeply and possibly weep, but for the lachrymal exigencies of the judicious the tear-bottles should be ranged along the opposite sidewalk, where their shapes would still make them very inconvenient to cry into. Above this point nature is exhausted, and no won-



THE EDISON BUILDING,

Broad Street, New York City.

der. There is another story above the bulls'-eyes, lighted by skylights at the top of the mansard, of which the architect has apparently left the design to the glazier. All the same, they perform a function in a straightforward way, and it is really a satisfaction to look at them after all the pretentious nonsense below.

It remains to be added that he who sees the Edison building in photography instead of in fact sees it to the better advantage. The combination of color is distressing in itself. It is the more distressing because in the superstructure the weak color goes with the more important structural parts and thus assists the negation of design which is attained by the forms. The front, as we have said, is not an architectural composition. Its stories are so many shelves loaded with architectural details, some of which have been and may be again used in architectural works, while some are altogether unsuitable for such use. The only single story which is neither ridiculous nor offensive is the second, while the building—as a whole, we were about to say, but it is not a whole—as a collection of things, is both ridiculous and offensive. To look at it one would say with entire confidence that the man who did it could never do anything good. As a matter of fact, he has done something good—something which has unity and quality and picturesqueness and charm. This fact converts the problem presented by the Edison building from one of architecture to one of psychology. We are inclined to give it up. Evidently the designer has failed to follow the injunction sometimes given by parents to inquisitive children. He has neglected to "use his thinker," and has trusted entirely to his "feeler," though how his feeling could have told him this was good is another baffling problem. Inasmuch as he has done something good, however, in considering this afflicting performance we gladly suppress what Mr. Swinburne has somewhere called—

"Our sad, bad, glad, mad brother's name."





CARVED PANEL IN THE RESIDENCE OF W. F. KINGSLAND, ESQ.
West 38th Street, New York City. Brunner & Tryon, Architects.

THE DIFFICULTIES OF MODERN ARCHITECTURE.

MODERN civilization has very unequally affected the fine arts. While sculpture in its methods and principles remains essentially the same art as in the days of Phidias, painting has been revolutionized by the discovery of new media of expression and new fields for its exercise. Oil- and water-colors, the scientific treatment of perspective and of the principle of values, landscape-painting, and, to a certain extent, *genre* as well, are peculiarly modern developments of the pictorial art. But it is in architecture that the changes have been most radical and far-reaching. Standing midway between the fine and the useful arts, architecture partakes of the nature of both; it is the finest of the useful arts and the most useful of the fine arts. It is, therefore, alike subject to those influences which affect the expression of sentiment in plastic form, and to those which concern the practical life and needs of society. In that strongly artistic period of Italian art which we call the Cinque Cento, we find architecture chiefly occupied with pure beauty of form, increasingly devoted to the purposes of public and private rather than of religious life. As physical science advances and life becomes more complex on its material side, it is only natural that practical and utilitarian requirements should become more imperative, relegating purely artistic considerations ever further into the background. This is precisely what happened in the case of architecture, which is to-day a different art, not only from that of the antiquity or of the Middle Ages, but also and even from that of the early Renaissance. It is prosecuted under different conditions, with different materials and processes; it is controlled by different considerations, and is called upon to supply different requirements. Those who complain of the failure of modern architects to profit by those historic examples of their art which are the admiration of all men, ignore or forget how difficult of application are the principles these exemplify to the special conditions prevailing in modern work. Conceived in another age, for other uses, and under conditions long since vanished, they can serve as models for modern practice only in the same way in which the epics of Homer or of Dante have stood as models for the study of writers of all subsequent ages. The fundamental principles of composition, construction,



DUQUESNE CLUB HOUSE.

Pittsburgh, Pa.

Longfellow, Alden & Harlow, Architects.

design, proportion and ornament, these triumphs of the builder's art certainly illustrate in consummate fashion, and are therefore ever worthy objects of study and admiration. But to apply the lessons they teach to the wholly new conditions created by modern life is no easy problem. Conscientious and highly-gifted architects have long been devoting themselves to this problem with varying success. If their failures have been many and their triumphs few, as some would have us believe, it is at least conceivable that the difficulties of the problem, and not the incompetence of the architects, may be the cause; but upon the architects usually falls the blame. The responsibility for the failure of modern architecture to reach the high level of past attainment, it is not wholly easy to rightly apportion. Many of those who have in recent times written on this and similar topics have shown themselves as incapable of discrimination and judgment in estimating what modern architecture has done or is doing, as they are ignorant or insensible of the actual conditions, requirements and limitations which prevail in modern practice. For this reason they fail to touch the true causes of the shortcomings they deplore, and instead of contributing to their cure they rouse futile and acrimonious discussion, bestow sweeping and unmerited blame, and fill the public mind with mistaken notions and unfounded suspicions. It seems, therefore, high time to call attention to some of the real difficulties of the problem of modern architecture. Certain preliminary considerations will first be in order, which if trite, are nevertheless fundamental.

The first of these relates to the two-fold nature of the art, to which allusion has already been made. Architecture has its origin in the material needs of mankind, and these must necessarily control its development. It has furthermore to deal with the stern laws of gravitation and of the strength of materials, to whose behests all its manifestations must be subordinated. In these aspects, then, it is purely utilitarian, and if it stops here, is not an art, but a science or a trade; it is mere building or engineering. It rises to the dignity and glory of an art only when it consults the demands of beauty and grace, seeking to reach the emotional side of man as well as to minister to his material wants. Mere fitness to an end is not artistic beauty, nor even an element in it. Convenient planning and stable, scientific construction may exist in—nay, they frequently seem to demand—forms and combinations wholly unpleasing to the eye. The demands of use and beauty not infrequently pull in opposite directions, as every architect knows. It is a sophism as hollow as it is common, that beauty consists mainly in fitness and appropriateness. It is time that this fallacy,* based as it is on a truth, were exploded. "Beauty is skin deep" in the sense that it relates only to external and visible form and color, not to function and internal structure. A wholly beautiful building or design may prove entirely lacking in convenience and appropriateness. The two kinds of excellence—utilitarian and æsthetic—are independent of each other. It is, however, true that when they coexist in one design, so that the perfect structure serves at once the ends of use and of beauty, each enhances the other; and herein we find suggested the true purpose and function of architecture. It is *to harmonize in one and the same creation, the independent and oft-conflicting claims of use and beauty*, so that the very forms devised to meet practical needs in the most perfect manner shall also satisfy the human craving for beauty, grace, refinement. In the highest types of historic architecture the beauty we admire is inherent. It is a part of the building, an outcome of its whole plan and construction, which have been made to serve the ends of beauty at

*The fallacy of this proposition lies in the use of the word "beauty" in two different senses. The proposition that "beauty" consists mainly or largely in "fitness" or "appropriateness to an end" is true if by "beauty" we understand the sum-total of qualities which give pleasure to the contemplation of a visible object. But it is not true of beauty in the special and technical sense of grace or loveliness of external form and proportion, qualities which, as we have said, may exist independently of fitness and appropriateness. It is a fallacy which in its essence one encounters not infrequently in Ruskin, to apply to this second meaning of the word "beauty," the conclusions based, correctly enough, on the first. The pleasure we experience in things well-designed from the point of view of mere utility, is intellectual rather than æsthetic. That which arises from loveliness of form is æsthetic rather than intellectual. These emotions are different in kind.



INTERIOR IN RESIDENCE OF THOMAS ADAMS, ESQ.

Corner of Carroll street and Eighth avenue, Brooklyn, N. Y.

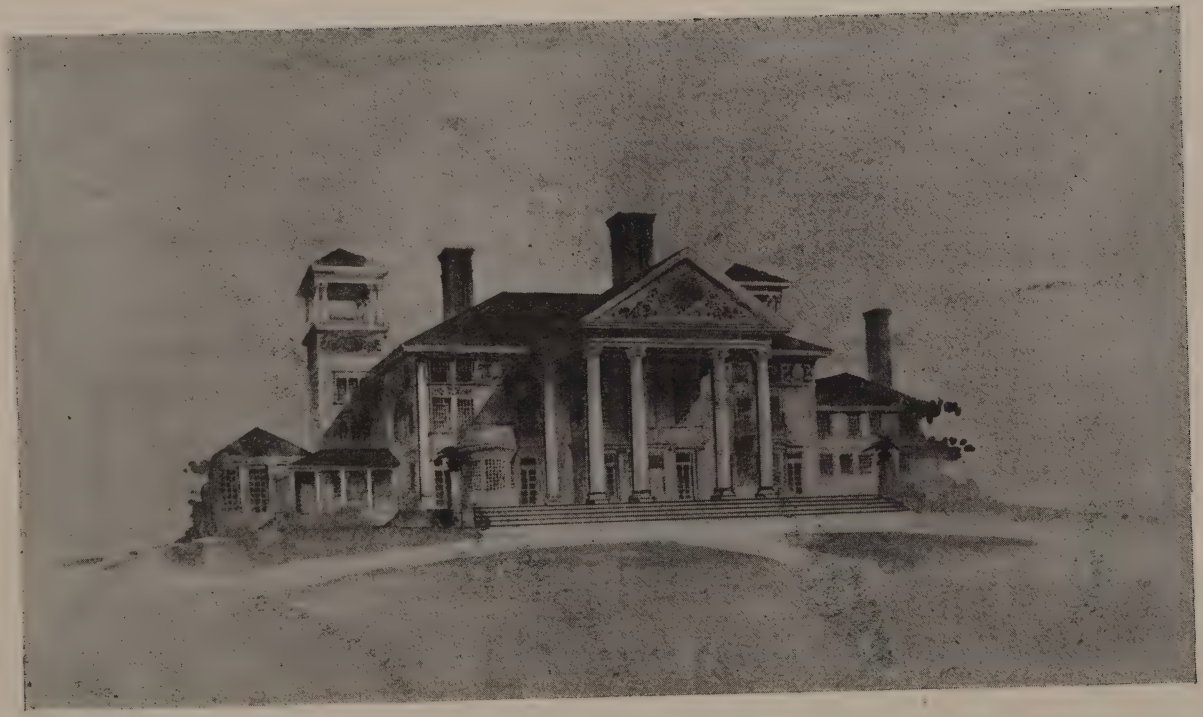
Charles P. H. Gilbert, Architect.

the same time that they meet the practical purposes for which the structure was designed. In engineering works, fitness, stability, and economy absolutely control the design, grace and beauty being sacrificed to these practical considerations; while, on the other hand, every design whose beauty is merely the adventitious grace of ornament, or in which beauty is produced only at the cost of convenience and sound construction, drops at once into the category of bad architecture, however excellent, viewed merely as a decorative composition.

It is beside our purpose to enter at present into the question of the modern use of styles, further than to call attention to the real meaning of the term. A style is nothing but the customary and characteristic system of construction and ornament prevailing in a given time and place. It is the outcome and product of all the social, political, economic, intellectual and artistic conditions that govern the age and people that practice it, and can change only as those conditions change; that is, in the same way with languages and literatures. No man, nor any set of men, can create a new style, nor has there ever been in history any sudden change in styles, except as the consequence of the overthrow of one civilization by another. Even the Renaissance in Italy brought no sudden revolution in architectural forms. It is surprising to see how far back into the Middle Ages the beginning of Renaissance architecture can be traced. Each so-called new style builds on what has gone before, in the near or remote past. As time goes on, erudition and archæology place at the architect's disposal increasingly rich mines of historic form, which it is his right and prerogative to draw upon freely. But with this greater range of choice comes the greater difficulty of choosing and combining, while a thousand influences beyond the architect's control operate to hamper the free expression of his own artistic imagination. The difficulty of rational and artistic design grows with the relaxation of established precedent, consequent upon this vast widening of the field of selection. The confusion of styles, that is, the mixture in one building, or the contemporaneous use in different buildings, of forms borrowed or imitated from distinct historic styles, thus finds its natural explanation in the intellectual spirit of the time, which in all branches tends to archæology and eclecticism. Whether this is or is not to be deplored, and what its present tendencies and final outcome may be, are questions by no means to be answered off-hand. They may be reserved for future consideration, as their discussion would too far transcend the limits of this article.

In the third place it should be considered that whoever would criticise modern architecture must carefully distinguish between shortcomings rightly chargeable to the architect, and those which exist in spite of him and constitute the conditions under which his work is done. This requires a practical acquaintance with the profession and its *personnel* which some earnest writers seem to lack. The critic must know what are and what are not representative modern works. He must separate tendencies that have "run out," and shortcomings that are fast disappearing, from those which are on the increase. He must distinguish between the creations of acknowledged leaders in the profession and the mass of commonplace work emanating from the nobodies who have neither taste nor training. It is of course possible to draw instructive lessons even from this lowest stratum of the builder's work, but these lessons do not pertain to architecture, and the failings they set forth should not be imputed to any one but the authors of such productions. The critic must also understand the relations of architect and client, and the limitations imposed by local conditions as to materials, space, expense, the demands of commerce and the degree of public education and culture in the community. It is the failure to make these and similar essential distinctions and to institute just comparisons that vitiates some of the most recent writing on modern architecture.*

* See the "Popular Science Monthly" for June and December, 1890, also the "New Englander" for May, 1891.



RESIDENCE OF J. F. D. LENIER, ESQ.

Westbury, L. I.

James Brown Lord, Architect.

Keeping in mind these considerations, let us see how they bear on the main question before us.

It becomes evident, in the first place, that just in proportion as material and utilitarian requirements become exacting will the architect find himself hampered in the artistic expression of his conceptions. The problem of harmonizing the demands of utility and taste must grow more and more difficult as the claims of material comfort and scientific construction become more numerous, complicated and unbending. But this is precisely the case with modern work, which must first of all meet the practical requirements of a life infinitely more complex than that of any preceding age. Science has created innumerable wants which the architect must satisfy, whatever else he may omit to do. Sanitary engineering demands a complicated and elaborate system of contrivances for the proper heating, ventilation and drainage of even the commonest private dwelling. Steam, gas and electricity must enter the service of the householder, traveling through countless pipes and insulated wires to furnish heat, light and power, to actuate bells and burglar-alarms, or to communicate thought. Gas engines and steam engines, pumps and elevators, ventilating fans and dumb-waiters, coal vaults and ice chests must be hidden away in the recesses of the construction, and yet be within the easiest access. Our modern social life requires its special arrangements of drawing, and reception, and dining, and music rooms; the private life of the family must be accommodated with its bedrooms and dressing-rooms, studies, libraries and sitting-rooms, its closets and bath-rooms, all arranged for the greatest comfort and convenience of the inmates as to access, retirement and intercommunication. Add to these elaborate requirements the stern limitations of the building laws and the restrictions imposed by the size and shape of building-lots in the larger cities of the modern world, and we find ourselves, even in the planning of a dwelling house, face to face with an exceedingly complex and difficult problem. For within these compact limits of size and shape the architect must meet every one of the multifarious conditions enumerated above and many others before he can even begin to think of artistic proportions and a lovely exterior. The client is inexorable in resisting any sacrifice of convenience or comfort to mere beauty, and he is quite right. Architecture is his servant, not his master, and it is the architect's duty to work beauty into the forms born of these hard conditions, not to attain it by disregarding the conditions. Undoubtedly the task is difficult. Let those who bewail the inferiority of modern to mediæval art consult the article "Maison" in Viollet-le-Duc's "Dictionnaire Raisonné," and they will realize the difference between the poor, comfortless mediæval house of two or three rooms within damp stone walls, with its narrow passages, tortuous stairs, and unsanitary arrangements, to which not even the French author's eloquence can make us blind—and the elaborate combination of rooms, halls, stairs, sliding-doors, baths, closets, kitchens and scientific contrivances which constitute the house of the average dweller in a modern city. He will perceive what few seem to realize—the immense difficulty of the modern problem of house-designing as compared with that of the period he so admires. Moreover the conditions change nowadays more in ten years than in a century of the Middle Ages, so that past experience is soon out of date and useless, whereas in olden times the slightest modifications sufficed to adapt the solutions of one decade to the problems of the next. What modern architects have accomplished within these untoward limitations offers at least as much to admire as to deplore. Especially in modern American country houses of not excessive cost is there to be found a remarkable combination of careful, logical and artistic planning, in which comfort, health and convenience are admirably provided for, with charming and picturesque exteriors,* inviting

*Readers of the "Semaine des Constructeurs" and of the "Révue Générale de l'Architecture" must have noticed the interest and admiration which this phase of American architecture has excited among French designers and critics. While duly alive to the defects of much of our domestic architecture, especially its proclivity to eccen-



WAREHOUSE,
Corner Great Jones street and Lafayette place, N. Y. City. H. Hardenburgh, Architect.

and full of character. In these houses there is doubtless much to criticise; but the faults are those of a nascent and virile art, still in process of development. If Pliny's delightful Laurentine villa was planned with reference solely to the varied exposures of the different wings and chambers to the sun, the shade, the sea, and the various prevailing breezes, the architect certainly deserves the credit of his success in meeting those requirements. But it is probable that any modern architect of reputation under the same social and economic conditions would have solved the problem at least as well, perhaps better. For the fact that modern clients, with modern habits of life, refuse to live in endless one-story buildings attended by a vast retinue of slaves, and prefer, even in country estates, houses of two or three stories, with hot and cold water, gas, furnaces or steam heat, double walls, glass windows and verandas; in which they can be served by two or three

tricity or mere picturesqueness, they bestow upon its qualities of sincerity, common sense and comfortableness, regard for outlook and vista, originality and appropriateness to site and surroundings, the heartiest praise. Several collections of American house designs have been published by important houses like that of Daly, while the French architectural journals are increasingly attentive to the progress and performances of American architects.

servants instead of a few hundred, society, not the architects, should be held responsible.*

But if the modern house is an intricate structure compared with that of the Middle Ages, and, indeed, of any bygone age, the developments of modern business in large cities have given rise to a class of structures presenting vastly greater difficulties of design and construction. The problem they present to the architect is one of the most knotty and perplexing that can be conceived, and the practical requirements are more unyielding and more varied than in any other class of designs he has to prepare. Upon a plot of ground usually narrow and irregular in shape, hemmed in by lofty buildings, he must erect an edifice many stories high, and divide it into the greatest possible number of offices, so arranged as to bring in the largest possible revenue. He is usually enjoined against "wasting" in courts and areas a foot of space not "absolutely necessary"—the proprietor usually constituting himself the judge of the amount required; while at the same time he is expected to provide all the offices with sufficient daylight. Everything being determined upon a basis of possible revenue, stairs and halls must be reduced as much, and partitions made as thin, as safety or the building laws will allow. The structure thus planned must be threaded and honeycombed with pipes and shafts, flues and chimneys; innumerable wires must be concealed in its walls and ceilings; and its basement be filled with machinery of various sorts. Every one of these things the architect must himself think out, provide for and specify in detail, whether or not he bestows attention upon the artistic possibilities of the building. He is likely to be far more severely blamed for a misplaced bell-button, or an inconvenient elevator, or for dark offices which the restrictions imposed by the proprietor alone have made inevitable, than for ill-studied and inartistic treatment of the architectural forms. In other words, material and practical requirements are by the conditions of the times made to wholly overshadow æsthetic considerations.

Modern processes of building, moreover, as exemplified in these monstrous many-windowed stacks of offices, still further hamper the free expression of artistic ideas. Iron and steel now form a large part of the framework of every important building, and the development of constructive forms in metal has naturally proceeded along the lines of engineering rather than of high art. In the Middle Ages engineering and architecture were practically one, both alike receiving their highest development in religious architecture, whereas modern engineering has busied itself mostly with railroads, bridges and factories, and similar utilitarian problems, to the suppression of any artistic development. Metal construction has followed in its lead, and the architect has to deal with the forms and processes which the market offers alike to the engineer and to him. It is only in rare instances that he is permitted to use these materials in the special shape and manner which his artistic taste would lead him to devise. Furthermore, new materials, building methods and appliances are constantly being invented, all of which the architect must appropriate and use to the best advantage if he would keep up with the times. The building thus becomes a truly mighty problem in construction, requiring an immense amount of scientific and practical knowledge of the most varied kind, and the constant application of elaborate mathematical calculations and geometric processes. It is safe to say that the designing of a great building like the Auditorium at Chicago involves problems of construction fully as serious and difficult as were ever encountered in the most stupendous of mediæval cathedrals. And in judging of the results two facts must be remembered which reflect the highest credit upon the talent of modern

*See in "Discourses on Architecture," by Viollet-le-Duc, Vol. I, the "Discourse on the Architecture of the Romans," for comments on Pliny's Villa; also in "Popular Science Monthly" for December, 1890, article by Mr. Barr Ferree on "Architecture and the Environment." Mr. Ferree hardly appreciates as they deserve the attention and pains bestowed by most reputable American architects upon the very points he commends to their study in Pliny's Villa —salubrity, exposure to sun and shade, situation, prospect, convenience of arrangement and rational combination of parts.

designers. The first is that while the erection of a cathedral occupied usually from fifty years to three centuries, during all of which time the constructive problems it involved were being studied in the light of the experience acquired in other and similar buildings, it is not infrequently the case that a building like the Auditorium in Chicago, or the *World* office in New York, is completed and occupied within eighteen months or two years from the first inception of the plans. The second fact is still more significant, but rarely taken into consideration by the critics. During nearly the whole of the period from 1060 to (say) 1450—nearly four hundred years—architecture in all northwestern Europe was predominantly occupied with a single problem—that of cathedral design. In England, France, Germany, Spain and the Low Countries, and to a certain extent in Italy, the requirements of the cathedral or abbey church as to plan, arrangement and general construction were practically the same. In all these countries the one great preoccupation was to vault the nave and side aisles of the type-plan bequeathed by the early Christian basilica, and to execute these vaults in stone and in such a way as to provide a lofty clerestory and immense windows, with the minimum obstruction of the floor space by piers and columns. Gothic architecture received its whole character from this problem, and it required three hundred years at least of the combined efforts of ecclesiastic and monastic architects, assisted by the skill of the powerful bands of "lay builders" to reach such a consummate result as we admire in Amiens, Strasburg, York, Burgos or Antwerp. In our times no two successive problems present conditions or requirements as similar as are almost any two mediæval cathedrals of the same period; the experience of a quarter of a century ago is useless in dealing with the design of to-day; and the modern architect, instead of being able to devote a lifetime to one or two buildings as his contribution to the solution of a problem on which the whole confraternity of architects have been unitedly laboring for a couple of centuries, must in the course of a year or two solve twenty wholly diverse problems, not consecutively, but a large number at once, among which may be one or two quite as complicated as the designing of a mediæval abbey church.

The commercialism of modern life, which hedges in the architect with its inexorable demands, and measures his work not by its intrinsic merit but by its income-producing value, is furthermore curiously allied with a love of splendor and luxury which disregards expense. This usually takes the direction of personal comfort or of excessive display, seldom consistent with the most refined taste, but demanding what is showy and costly rather than what is really beautiful. This love of splendor the architect has to count with and minister to; he is thus compelled to prosecute his work under conditions adverse to any free expansion of his artistic nature. He is expected to master branches of knowledge the most diverse; he is compelled to consider requirements innumerable and harassing; he is constantly confronted with sordid considerations of cost and interest; he is held responsible for the proper expenditure of millions of money, and for the correct execution of the minutest details of the most extensive and complex structures. Dealings with contractors and sub-contractors by the score; the selection of plumbing appliances and gas fixtures; pesterings of stupid, self-conceited and unreasoning clients, who set up their own crude conceptions and vulgar taste against the cultivated taste of the architect; the adjudication of disputes between clients and builders, calculations of girders and trusses, thrusts and weights—these are cares and duties which try the capacity and patience of the modern architect wholly outside of the main task of designing the building and preparing the drawings for its erection. Amid such an untoward environment, and occupied with such perplexing cases, he is asked to solve problems of whose difficulty what has been already said can give no adequate conception. What wonder if the artistic faculties are warped and stifled; if



Providence, R. I. CENTRAL CONGREGATIONAL CHURCH. Carrere & Hastings, Architects.

considerations of the good and the beautiful seem less and less imperative; if his failures are many and his successes few in the task of reconciling his artistic inspirations with the heterogeneous and iron-clad demands of modern life and business, and the unformed taste, or bad taste, of a philistine *clientèle?* To reach the ideal solution of the problem, to extract from these hampering conditions results inherently beautiful, demands true genius, and the world has never been prolific of geniuses.

When one considers the results achieved in the domain of modern domestic architecture, to which brief allusion has already been made, one must recognize the existence of a vast amount of highly meritorious work, in which artistic beauty is admirably blended with practical excellence and scientific construction. In the architecture of modern commercial buildings, the failures are certainly more obvious, but the triumphs are numerous and praiseworthy. When we consider the immense difficulties of this branch of architecture, we cannot fail to be impressed with the talent and skill often brought to bear upon the problem. Even when the artistic aspect of these buildings is unsatisfactory—let us cite as an example the New York *World* building—one is compelled to admire the sound and often ingenious construction, the masterly dealing with extraordinary difficulties of planning and arrangement, and the taste shown in the details, while many of the most obvious defects prove on investigation to be due to the interference of a client in matters of taste, or the force of circumstances which the architect could not possibly control.

In the domain of public architecture, including theatres and halls of assembly and governmental buildings, the difficulties are of a different kind, and the opportunities for artistic expression greater than in commercial structures. The defects in such buildings are, however, greatest on the artistic side, in our own country at least, and for this our architects are certainly in a measure to blame. But here again we are met by the presence of the adverse environment amid which modern architects pursue their vocation. The universal commercialism, the constant pressure of utilitarian considerations, the lack of sympathy or appreciation on the part of clients and corporations for what is truly noble and lovely in art, the constant dinning of the question of cost, economy demanded precisely where liberal expenditure should be applied, and display called for where a sober economy were far better—all these influences tend to stifle the artistic spirit, and to reduce architecture as nearly as possible to the condition of a branch of engineering. In this department, moreover, as well as in religious architecture, the constant change in the requirements of buildings of the same class operates precisely as in domestic and commercial architecture to prevent any such continuous approach to a final and perfect solution as we find in earlier ages—in the Doric temples of Greece, for example; or in the Thermæ of Imperial Rome, or the churches of Mediæval Europe.

If these observations have assisted any reader to an appreciation, however imperfect, of the great difficulties which beset the development of modern architecture, he will perhaps view its shortcomings with greater lenience and its achievements with greater respect. An intimate acquaintance with the great body of its practitioners, not merely with the conspicuous leaders, but with many also of humbler reputation who pursue their labors modestly and faithfully in obscure places, would certainly lead to a high estimate of the general earnestness, conscientiousness and intelligence with which they endeavor to meet and solve the problems and overcome the obstacles they encounter. The proportion of highly-educated and thoroughly-trained men among them is increasing; architectural schools are multiplying, and amid all the confusion of styles which arouses the ire of the critics there is manifest a growing dignity and refinement in composition and detail. The future cannot be predicted, but it certainly is not without signs of promise. We are now in a period of transition, and suffer

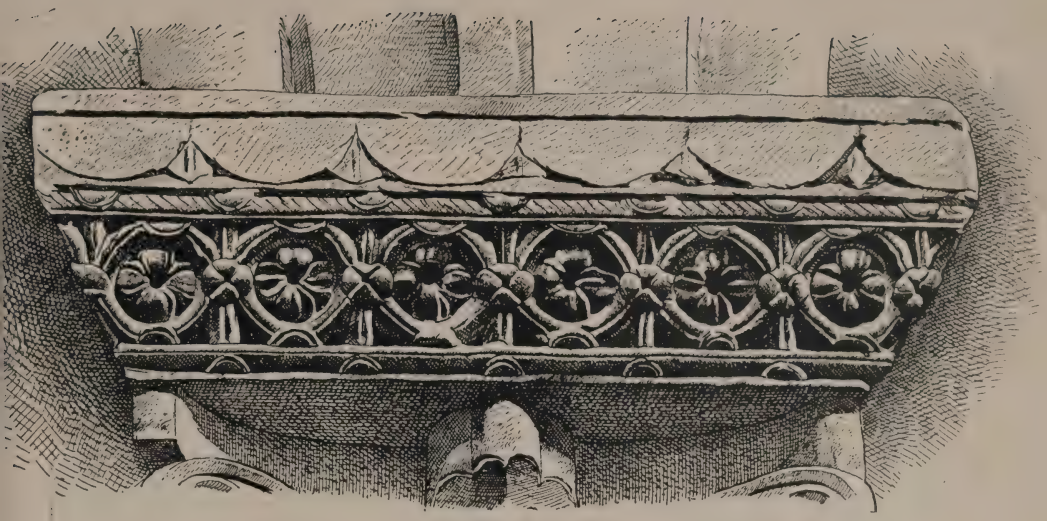


CRYPT, LINCOLN CATHEDRAL.

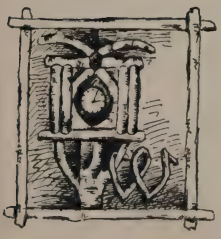
from all the difficulties inherent in such a period. Neither indiscriminate praise nor sweeping condemnation on the part of the public will help the cause of noble art at such a critical point in its development. It is to be hoped that the public, to whom the architect looks for his employment and his reward, may come in time to such an acquaintance with the nature of his work and with his own disposition and aims that the praise of the whole community shall be unstintingly awarded to every sincere and intelligent effort of his towards a pure and noble result, and its condemnation visit with merited severity all that is base and unworthy in this greatest of the arts.

A. D. F. Hamlin.





THE ROMANESQUE REVIVAL IN AMERICA.



E have considered the Romanesque revival first in New York, although New York was neither its starting point nor perhaps contains its most noteworthy examples. But there is so much more and so much costlier building in the biggest and busiest town of a country than in any other that any architectural movement that is general and national is pretty sure to be there most fully reflected and illustrated. We are apt to deplore the conditions of our life as unfavorable to art, and so doubtless in many ways they are; but it is not because we are living in a commercial republic, for it is out of the conditions of republican and commercial cities, from Athens down to Venice, that some of the most energetic and spreading artistic movements have come that the world has ever seen, while it is directly to the commercial and political rivalry of towns that we owe the development of ecclesiastical architecture in France in the thirteenth century, of civil architecture in the Netherlands and of the mediæval architecture as well as of the Renaissance architecture of Italy. The palaces of Venice and Florence and Genoa tell us plainly enough that their merchants were princes and their traffickers the honorable of the earth—as plainly as that story is told by Fifth avenue and Commonwealth avenue and Michigan avenue and Rittenhouse square. If the monuments of these latter thoroughfares are upon the whole less admirable than those of the older and transatlantic towns, the cause of the difference must be sought elsewhere than in a difference of the pursuits of those for whom they were built.

While New York, then, may not be the American town in which interest in architecture, or in any art, is either most general or most intelligent, it is by dint of mere size and activity that from which most examples can be culled of any architectural movement, whether it be a serious attempt to develop a rational mode of building, like the Gothic revival of twenty years ago or the Romanesque revival of to-day, or the adoption of a frivolous and fruitless fashion like Queen Anne. The former generation in which Boston boasted itself to be the Athens of America has passed away, and in most respects the boast may now be idle, but Boston is the source of the Roman-



TRINITY PARSONAGE,

Boston, Mass. H. H. Richardson, Architect.

esque revival which has spread itself over the country, as our illustrations attest, to and beyond the Mississippi. Mr. Richardson himself was a practitioner in New York when he designed Trinity in Boston, and it was undoubtedly the success of that church which began the revival. It was very possibly this success that determined the removal of its author to Boston, where from that time until his death, for the decade that remained to him and that really comprised his artistic career, he devoted himself to showing the applicability of the style in which he wrought to all the problems that came to him for solution. The attempt would have been worth making even if its success had been more questionable, for a common style, an understood way of working, founded upon "a consistent system of construction and decoration," is a chief need, not merely of American architecture but of all modern architecture. In France, and among the Latin nations in general, there is an understood way of working. The trouble with it is that it is not founded upon "a consistent system of construction and decoration" for its decoration, its architecture, is inconsistent with its construction or irrelevant to its construction, and so the style lacks life, and in lacking life lacks the possibility

of progress. It seems strange that a style so obviously devoid of logic should have been matured and propagated by a nation that above all things prides itself upon being logical. It has been attacked upon this ground by many Frenchmen, most conspicuously by Viollet-le-Duc, whose literary work was a consistent and continuous protest against the system and the outcome of

who remember the impression produced upon lovers of architecture throughout the country by the publication, in the "New York Sketch Book of Architecture" for 1874, of Mr. Richardson's perspective sketch of the tower of Trinity, remember it as the advent of a new and individual talent, an event that does not happen often in a lifetime to the lover of any art or of all arts.



SHADYSIDE PRESBYTERIAN CHURCH,
Shepley, Rutan & Coolidge, Architects.

the architectural instruction of the École des Beaux Arts. It was for this reason that when he came to lecture at that institution he was hissed and hooted for a blasphemer by its students, of whom, for all I know, Mr. Richardson may have been one, the very man who was afterwards to show the advantage that a training in the conventional architecture of France gave to the career of an architectural revolutionist.

Trinity was undoubtedly the starting point of the revival, and it would be rash to say that the revival has produced anything better. Those of us

> "Then felt they like some watcher of the skies
> When a new planet swims into his ken."

Their admiration and their glad surprise were not at all diminished if they happened to remember that the work which thus affected them was, in its general form and massing, and in some of its features, a reminiscence of the central tower of Salamanca; for the tower of Trinity is not merely the tower of Salamanca restudied and enriched and improved, but the design of it throughout attests the presence of a more original power than that of the



COURT HOUSE.

Pittsburgh, Pa.

H. H. Richardson, Architect.



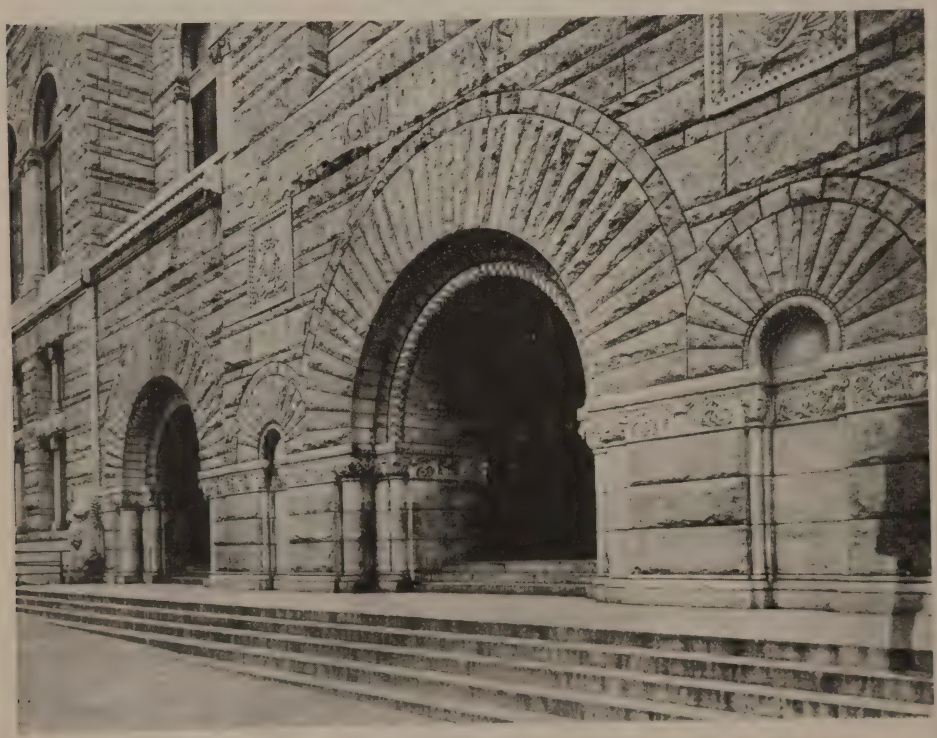
Pittsburgh, Pa.

PITTSBURGH JAIL,

H. H. Richardson, Architect.



Pittsburgh, Pa. MAIN ENTRANCE TO JAIL. H. H. Richardson, Architect.



MAIN ENTRANCE TO COURT HOUSE.

Pittsburgh, Pa. H. H. Richardson, Architect.

designer of what we must still call the original. This tower is the church, and after fifteen years it remains perhaps the noblest work that American architecture has to show, and certainly the finest and most typical, as it is the first monument of the Romanesque revival. The church has its faults, as its architect well saw, and he endeavored during the first half of the thirteenth, and that nothing is likely to be done except under a sense of responsibility which it is almost unexampled to see exhibited with respect to a contemporary monument.

In church building itself the success of Trinity has not been so fruitful as in some other departments. Mr. Pot-



INTERIOR PITTSBURGH COURT HOUSE.

Pittsburgh, Pa. H. H. Richardson, Architect.

his lifetime to amend them. Perhaps these may be summed up in one fault, that the work as executed does not sufficiently and at all points subordinate itself to this central and dominant feature, and conduce to its predominance. But it is a fact not less creditable to the æsthetic sensibility of Boston than to the beauty of the work itself, that in the various projects for the improvement and completion of the church there is evident as great a reverence for a product of the last quarter of the nineteenth century as if it were a relic of

ter's work in New York, which we have already considered, is nearly all the ecclesiastical architecture in that city which has been directly inspired by Mr. Richardson's example. About the most important church erected since Trinity is the Protestant Episcopal Cathedral at Albany, by Mr. R. W. Gibson, a design in a free and somewhat Hispanized English Gothic, which in much of the detail, however, shows a reversion to Romanesque. Mr. Richardson's unsuccessful design for the same building gives promise of a build-



CHAMBER OF COMMERCE.

Cincinnati, Ohio. H. H. Richardson, and Shepley, Rutan & Coolidge, Architects.

ing perhaps upon the whole more successful even than Trinity, and the influence of this design, even more than of his executed work, was visible in many of the designs for the Cathedral of New York. A Presbyterian church at Pittsburg by Mr. Richardson's successors, Messrs. Shepley, Rutan and Coolidge, is an unmistakable and a very successful piece of Richardsonian Romanesque, which owes much of its success to the skill with which the central tower, a lower and much simpler crowning feature than that of Boston, is developed into the church to which the other features of a short nave and shallow transepts are brought into harmonious subordination. A church at Andover, Massachusetts, by Messrs. Hartwell and Richardson, comes much nearer in its general form and disposition to the accepted type of an American country church, a nave without transepts or clerestory and a corner tower. In the combination of material and in the treatment of the detail it is evidently enough Richardsonian, without excluding individual thought on

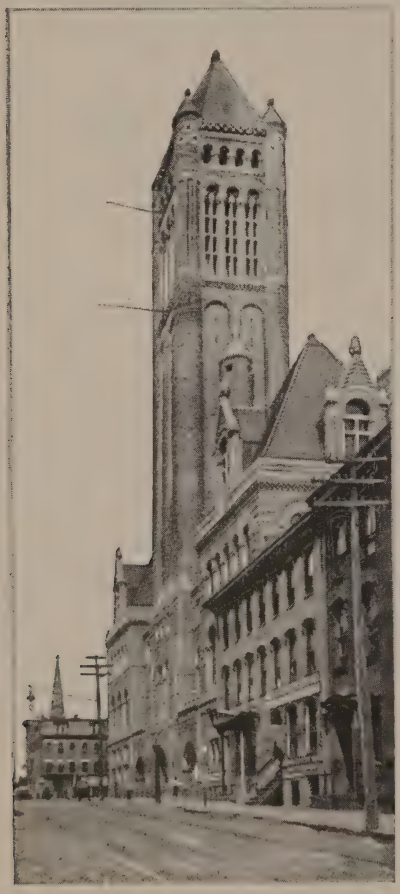
the part of its designer. The quoining of the angles of the square and massive tower in the darker of the stones employed is an effective device, and so is the framing of the belfry lights in an ample border of wall.

Nevertheless it is in civic work much more than in ecclesiastical that the influence of Richardson is manifested, and that the Romanesque revival most



prevails. Clergymen and laymen who serve upon building committees are still commonly of the opinion that pointed Gothic is more "churchly" than Romanesque, and architects continue to consult their preferences. It is perhaps fortunate that Trinity church in Boston is very much too large and elaborate and costly to be very often repeated on the same scale, while it is quite impracticable to reduce its scale so as to make it available for a smaller and cheaper church. Otherwise we might see reproductions of it in miniature springing up all over the country, and this would be a result very much to be deplored. Perhaps it is unfortunate that some of its author's civic structures are more easily imitable and adaptable. With intelligent and artistic adaptation there is of course no fault to be found. Have we not just seen how in starting from the lantern of Salamanca, Mr. Richardson himself not only made an advance upon his prototype, but evolved a beautiful tower which is to all intents and purposes a creation? If any architect can do this with the work of any other architect, we shall never say him nay. The success of Mr. Richardson's county buildings at Pittsburg has stimulated countless imitations, of which, fortunately, most remain on paper, but one is in course of execution in the Court House of Minneapolis. It would not be fair to call this a mere imitation, nor is its execution to be deplored. But its designer would not be apt to deny that the general massing of his

building is derived from Mr. Richardson's work, to which some of his competitors adhered even more closely. The Pittsburg buildings derive their individuality in great part from the conditions of the problem, a pile in intractable granite built in a smoky town in which the deposits of soot threaten to nullify all delicacy of de-



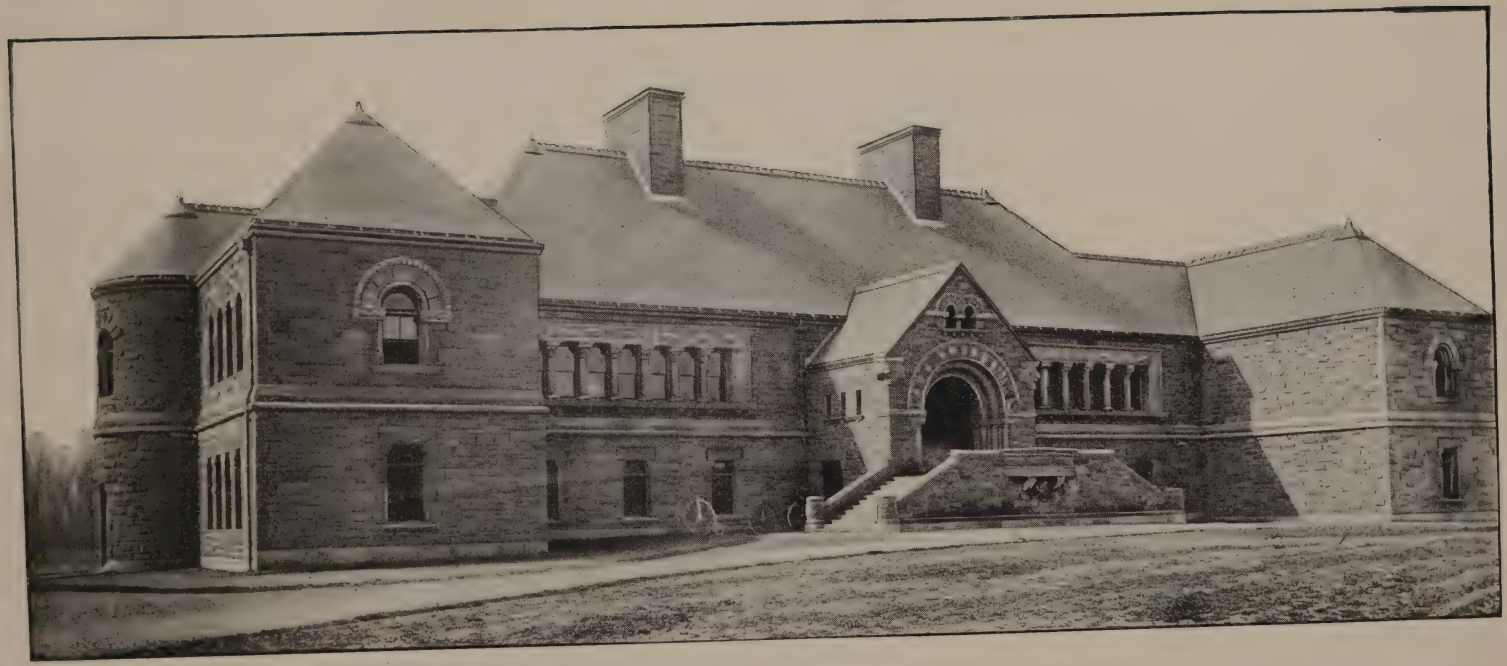
COURT HOUSE,
Pittsburgh, Pa. H. H. Richardson, Architect.

tail and to encumber all projecting members. It would be highly unreasonable to reproduce, in a more facile material and in a clearer air, the treatment imposed by these conditions. All that can properly be conveyed from the building and made available elsewhere is precisely the general composition, and this the designer of the Minneapolis Court House has conveyed.

One of the latest civic works of Mr. Richardson, and one of the most successful, is the Cincinnati Chamber of Commerce. It is so late indeed that the design was left to be completed by his successors. His peculiar power of simplifying a complicated scheme by seizing upon what is really the most important of its requirements, detaching and emphasizing these, and converting the rest into accessories, has never been more signally illustrated than in this work. The main hall unmistakably asserts itself on the building, in spite of the four stories above it. Odious as comparisons are, it is worth while to compare the effect of this treatment with that of the New York Produce Exchange, where the requirements are very similar. The arcades of the hall are in themselves very powerful and impressive, and they gain very greatly in power from the solid bounding towers that give a greater assurance of secure abutment than could be given by an equal space of flanking wall, while these towers are produced above the eaves so as to relieve at once and to accentuate the great pyramidal roof, as pinnacles group themselves about a spire. The skyline is further animated and the monotony of the roof relieved by the tall and picturesque dormers that in their form and arrangement recall those designed by their authors for the Capitol at Albany, but are distinctly more successful. The material of the Cincinnati building, the pink Milford granite, compels a great severity of treatment. Of ornament, strictly so called, there is scarcely any, while the mouldings are such only as are needed to mark the main divisions of the building and to express its construction. Severe as is the treatment of detail throughout, that of the substructure is so much more uncompromising in its severity than that of the superstructure, and this character is so much promoted by the batter of the basement, as to give the superstructure an air of richness and almost of elaboration in comparison. Another building of similar purpose is the Boston Chamber of Commerce, now in course of erection. It is of the same material, and it is equally Romanesque in character, albeit the gabled dormers

of what may be called the tower give it a somewhat Gothic air. The separate roofing into a tower of an end of the building is explained and justified by the triangular site, and the resulting mass with its conical roof recalls the New York Cotton Exchange, although the treatment of masses as well as of detail is so widely different as to have only this point of resemblance. In this case the windows that indicate the great hall are raised upon a two-story basement and crowned by an attic of a single story, an arrangement that emphasizes the importance of the principal division, and that is pretty clearly more eligible in this place than would be the reversal of the disposition by giving a single story to the basement and two to the attic. Here again the principal requirement of the structure becomes the principal feature of the design, and this is in itself an achievement, considering the difficulty to which the elevator has given rise of uniting in the same building a place of public assemblage and several stories of rooms constructed to be rented at a profit, a difficulty which so many designers find insuperable.

After churches, perhaps even without this exception, the most attractive and tempting of problems to a modern architect are the institutions for the promotion of humane culture, the number and importance of which, in our country, attest not merely its wealth but its public spirit and its progress in civilization. In museums and libraries and the like the requirements of the problem, however intractable they may at first appear, will, upon sufficient study, yield to the designer who follows them faithfully, the basis for striking and individual architectural expression. That is to say, they are for the most part really architectural requirements. The most characteristic of our current work is in commercial architecture, of which this cannot be said. In an elevator building, for example, the need for light, especially urgent in the lower stories, makes very difficult the task of giving a lofty building a sufficient aspect of massiveness to secure apparent strength and stability, and the designer is tempted to contradict the purpose and character of his building in order to secure this aspect. That a building should be solidest at the bottom and lightest at the top is one of the most elementary of architectural requirements. That it should be lightest at the bottom, that is to say, that its ultimate supports should be attenuated to a minimum, is, in the minds of many owners, an elementary requirement of commercial architecture, and it is this which designers find most embarrassing. The highest successes of our commercial architecture have nevertheless been won by those architects who have not evaded this problem but have attacked it directly, but of course they must wish for a less exacting *donnée*, since even with the best of their works it is necessary to make allowances. It is otherwise with the institutions of which we are speaking. There is, for the most part, no such contradiction involved in them between use and beauty, but the facts of the structure need only to be expressed straightforwardly to tell an interesting story, of which the interest may be enhanced according to the ability of the story-teller. The first of Mr. Richardson's secular works to arrest the attention and to secure the admiration of his profession was the Woburn Town Library, of which the design was published in 1877, just after the completion of Trinity. It was well worthy of the admiration it excited, though it was improved upon in a series of charming works for the same purpose and of the same character at North Easton, Quincy and Malden. Perhaps the Crane Memorial Library at Quincy is the most successful and exquisite of these, and certainly it ranks very high among its author's successes. In another place I have expressed what seems to me the essence of Richardson's power of design as the power of simplification, and these buildings seem to illustrate this. Assuredly the series shows a progressive simplification which has its climax in the building at Quincy, where the simplicity would be baldness but for the great art of the adjustment of the three features of the front, the reading-room, the book-room and the entrance, while the interior shows some of the most exquisite of his detail. The



LAWRENCEVILLE SCHOOL,

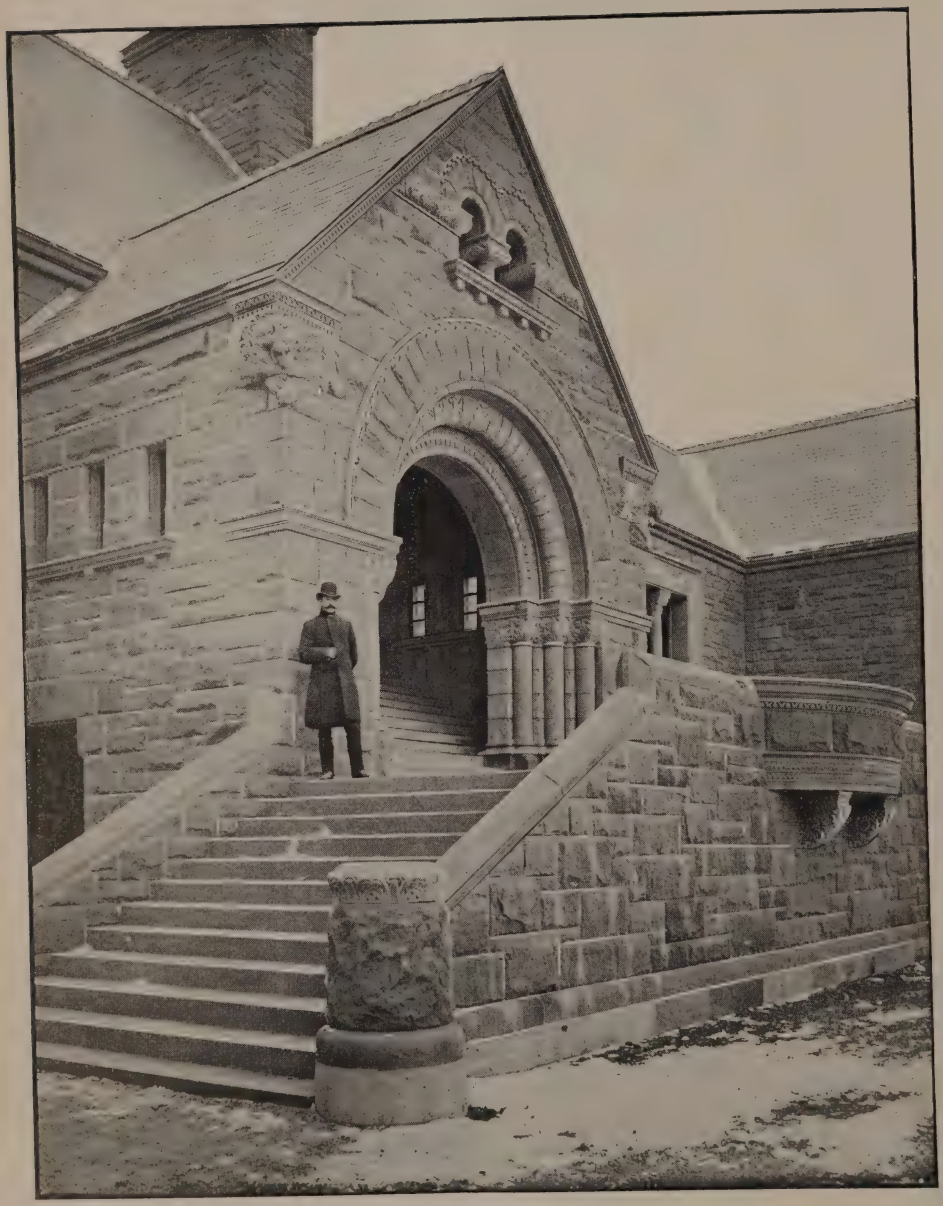
Lawrenceville, Mass.

Peabody & Stearns, Architects.

series has been admirably supplemented by Mr. Richardson's successors in the truly Richardsonian Public Library at New London, where the two features of the front, the arcade of the entrance and the large lintelled openings of the reading-room are cleverly harmonized by the introduction between them of a third feature in the polygonal turret, and where the chief defect of the design at Quincy, the leanness of the terminal pier of the colonnade, is obviated by an emphatic flank of wall. The success of this beautiful little building is another illustration, as indeed the progressive success of Mr. Richardson's own series of libraries is an illustration, of the wisdom of employing again and refining upon a motive already employed, rather than of abandoning it because at some points it fails to satisfy the designer, in favor of a radically different motive to be in turn worked out crudely and in turn abandoned.

Another very successful piece of simplification is the school at Lawrenceville, Massachusetts, designed by Messrs. Peabody & Stearns, where the principal story is a colonnade divided by the porch at the centre, set between a basement as nearly unbroken as may be and by a roof absolutely unbroken, except for the emergence of the plain chimneys, while it is framed between projecting wings of which the flanks are absolutely solid, while the fronts are pierced by but a single opening in each story at the centre of the face. It would be impossible to disturb the repose of such masses, the massiveness of which is accentuated rather than enfeebled by the openings, even with bad detail. In point of fact the detail here, excepting the questionable decoration of the lintels of the colonnade, is very good indeed, and in spirit is truly Romanesque, as the treatment of the porch bears witness, in which the ornament again accentuates the massiveness of the members to which it is applied.

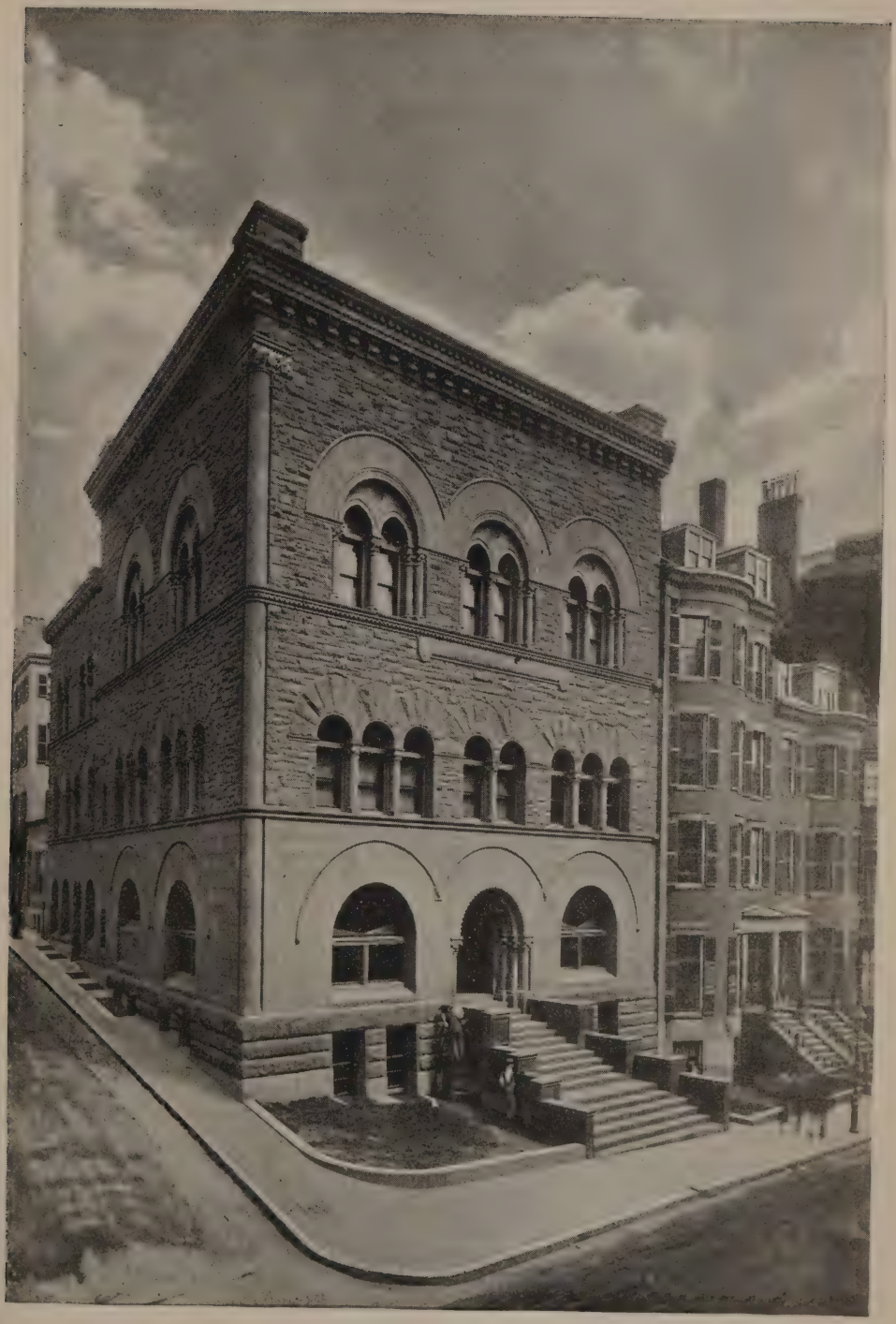
Another work by the same architects, the American Unitarian Association Building in Boston, though designed under very different conditions, is equally Romanesque in spirit, in spite of the arches doubled under relieving arches in the third story, which recall rather some examples of Italian Gothic than any phase of Romanesque, and it aims equally at walliness. Blank wall is indeed one of the most certain, though it is also one of the most obvious means of gaining architectural effect, and it was by his perception of its effectiveness, and by his faculty of judiciously letting it alone, that Mr. Richardson exerted one of his best influences upon the architecture of the country. But clearly enough it is necessary to the effectiveness of blank wall that it should be relieved with openings, and that it should be in the right places. In the amplitude of its blank wall the building now under consideration leaves nothing to be desired, and not much in respect of its disposition, laterally, with reference to the openings. These are grouped at the centre with piers dividing the front into three bays, but these intermediate piers are distinctly subordinated to the much wider terminal piers, and the effectiveness of this disposition is much enhanced by the large roll moulding that defines the outer angle of the building. Vertically, also, the arrangement of the blank wall is very effective, and gives the front a look of massiveness that is very satisfactory until one happens to ask himself where the floor lines occur. He then perceives that all the stories are lighted from the bottom, while the great stratum of wall between the openings of the upper story and the cornice even suggests that there may be an additional floor, not expressed at all in the exterior and lighted from the roof. At any rate, the practical sacrifices to the enlargement of the wall spaces seem to be alike serious and superfluous. The arrangement is questionable also by which a basement of cut stone is made to carry a rock-faced superstructure. This capricious variation from the rule, with the greater elaboration and enrichment of the first and third stories, gives the wall three divisions of which the central is much the rudest. Nevertheless the front has undeniably the look of massiveness which the designer meant to give it, and recalls some of the Florentine work by which it may have been suggested. The detail is of various



LAWRENCEVILLE SCHOOL,

Lawrenceville, Mass.

Peabody & Stearns, Architects.



AMERICAN UNITARIAN ASSOCIATION BUILDING,

Boston, Mass.

Peabody & Stearns, Architects.

quality. The sill courses that mark the divisions of the stories are very sharply and effectively profiled, and the ornament of the upper is well designed and well placed. On the other hand, the capitals of the columns at the main entrance are very unfortunate. They are not foliated, but merely projected into flabby and pendulous lobes, which do not in the least convey the notion of support that is expressed in every well-designed capital, and which are not in any respect admirable. A bare bell would be much more expressive and much more effective.

A striking illustration of Mr. Richardson's passion for simplification was furnished in his design for a public building in Buffalo, of which the requirements were that it should contain not only a large and growing library and a reading-room, but a museum of fine arts and an historical collection. The enumeration of these requirements does not indicate a simple building, much less a building of one feature as their outcome, and as a matter of fact the projectors of the building accompanied their invitation to competing architects with a sketch plan that was of considerable complication, since it had not merely to provide for these varied requirements, but to be adjusted to a site of irregular shape. Nevertheless, by disregarding this plan and putting his building on the site in his own way, Mr. Richardson managed to evolve a design of which the principal front is in effect a single feature, a long arcade abutted by two round towers and broken only by the steep gable of the porch at its centre. To this feature a very plain basement of lintelled openings below and a blank wall surmounted by a skylight above served as foils. It was a very interesting design, and the more so by reason of the complete subordination of the front to its principal feature. The accepted and executed design by Mr. C. L. W. Eidlitz worked upon the lines of the imposed plan, and the designer's effort is evidently enough to express in his building the different purposes of its parts, while at the same time bringing them together and binding them into an architectural unity. This latter purpose is the main object of the tower which is meant to unite and dominate the parts. Any requirement of a building that is in itself legitimate is a potential source of architectural expression, and may become the cause of an architectural effect, and this is a truth that is too generally forgotten by architects who, in despair of making an effective piece of architecture out of the requirements they are striving to satisfy, mask the work they are really doing with a screen of architecture derived from some other source than a consideration of these requirements. Nobody will dispute that all the varied purposes of the building are expressed in Mr. Eidlitz's design, while the tendency of an expressive treatment of such a scheme on such a site to "scatter" and to produce a straggling building, that is a congeries of parts rather than a whole, is effectively counteracted by the introduction of the tower, at the point where the abrupt change of axis of the building presents the chief architectural difficulty of the problem. The tower does evidently bind the buildings together and thus serves its purpose, while the detail, everywhere a modelling and modification of the masses, is very well adapted to further the impression of weight and solidity which the disposition of the masses gives, as well as the impression of picturesqueness which arises from the unusual arrangement. "Picturesqueness" in architecture, by the way, so far as it is an admirable quality, always gives the impression of being a casual and accidental result, and is always offensive when it is perceived to have been sought and premeditated. In this instance the picturesqueness of the building so evidently proceeds from the conditions of the problem that it is attractive by reason of its unsought and unforced character. The most conspicuous of the detail of the building is in the entrance, of which an illustration was given in the first number of this magazine. The position of this feature helps to dissemble the change of axis, and thus to further the purpose for which the tower is introduced, while its detail is truly and admirably Romanesque both in its massiveness, and in the fact, which is everywhere evident,



Buffalo, N. Y.

LIBRARY AND ART BUILDING,

Cyrus L. W. Eidlitz, Architect.



ST. PETER'S CHURCH,
Baltimore, Md. McKim, Mead & White, Architects.

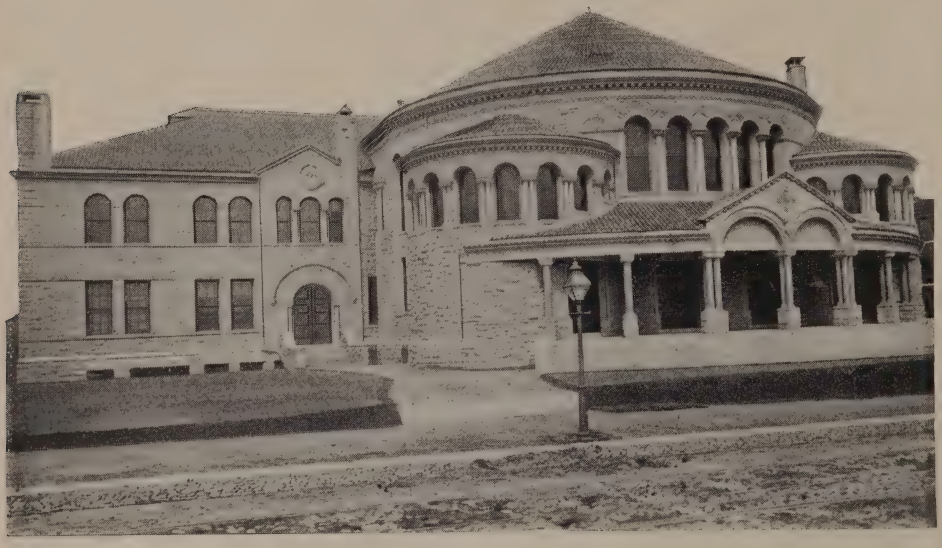
that it is literally a "detailing" of the mass, and not the addition of anything extraneous. This last, of course, may equally be said of Gothic design, and indeed, in spite of its massiveness, and of the fact that none of its round arches are pointed, the general treatment of the building is such that its expression is as near to that of a sturdy Gothic as of an elaborated Romanesque, and that few changes could be needed to convert it into an unquestionably Gothic building, although it is quite plain that the architect had no intention of preserving academic purity or of presenting an example of any historical style. The Gothic and aspiring character of the design of the Buffalo building is given to it mainly by the frequent gables, and it is equally evident in another work of the same author, a design for a museum at San Diego, California, in spite of a detail equally Romanesque. This is a building on an unrestricted site and presents a front generally symmetrical, though the symmetry is obtained in the Gothic manner by a balance of masses rather than in the classic manner of providing for every feature on one wing its exact counterpart on the other. It is a very successful design, although the gabled centre of the principal block, in itself a very good composition, offers perhaps

an incongruity with the treatment of the roofs elsewhere, and the treatment of the crowning member of the tower leaves something to be desired. But the device is especially effective by which the base of this tower is incorporated with the building, while its shaft detaches itself at the cornice line, and the arcade of the nearer angle is a vigorous and effective piece of design, to which the expression of an abutment otherwise scarcely adequate is secured by the solid corbelled turrets at the corners.

A church in Baltimore, comprising also a group of parochial buildings, by Messrs. McKim, Mead and White, is one of the happiest examples of the skill of those designers and almost if not quite a unique essay of theirs in Romanesque, albeit its Romanesqueness appears rather in character than in detail. It owes its effect, indeed, more to the vigor of its massing and to the success of the general composition than to any felicity of detail. It is to pay a high compliment to a modern building to say that it is better in mass than in detail, and better in perspective than in elevation, and this may truly be said of the work under consideration. It is a modern "auditorium church" and the amphitheatrical sweep is perfectly expressed. Its expression gives rise to difficulties that are twofold, first in allying this central oval to the rectangular buildings that surround it and next in bringing the steep and conspicuous roof of the auditorium into harmonious subjection to the tower, which is a feature yet more important. These difficulties have been vanquished so completely that the ordinary observer is scarcely led to suspect that they existed, while the critical observer is forced to admire the results of what he perceives to have been the long and patient study by which the various masses are brought into a whole that has so much variety in its unity, and that is so complete a composition both from the point of view from which our illustration is taken and from the opposite point of view. Its success is enhanced by the material employed, a very dark stone used rough-faced for the walls and a dark glazed tile for the roofs. One can indeed wish that a design so successful should have been more carefully wrought out in detail. The masses here are so powerful that they would have borne a much higher elaboration than they have received, and that the spectator might have been led to linger over the parts with the same admiration that is extorted by the aspect of the whole. Rudeness is the defect of the quality of massiveness that so eminently belongs to Romanesque, but it is not in itself an artistic quality. The great solid tower is the most successful as it is the chief feature of the design and in the mass it is singularly impressive. But its massiveness and its solidity need not have been compromised, nay, they might have been promoted by a more careful modelling of its parts. A shaft of ten stages of rock-faced wall, the stages divided by unmoulded offsets, at each of which the tower is diminished in area, each pierced at the centre by one slit or by three, and the whole crowned by a steep hood is, as we see, a very striking object, but with the treatment that it receives here it has an effect of rudeness and archaism that seems affected and that has a dangerous tendency to convert it, in spite of its evidently structural character and of its mass, into "scene painters' architecture." It is as rude as an Irish round tower of the twelfth century, or as one of the earliest efforts of the Lombard builders in Italy. These structures are admirable for their *naïveté*, but an intentional *naïveté* such as the modern architect exhibits when he reproduces their rude work in spite of the later developments of it of which they could not know and of which he cannot help knowing, is not *naïveté* at all, but affectation. The quality of his work is not simplicity but *simplesse*, and so far as it appears tends to mar an admirable work. Surely there would have been no detriment to the vigor or solidity of this tower if its upper stage had been somewhat opened and somewhat lightened so as to become really a belfry stage, and if the summit had been so treated as to prepare for the hood of the roof. As it is, this hood seems to have been

casually dropped upon an unfinished tower, and this is an effect the designer cannot have intended. All the same, it would take a much worse fault to neutralize the impression of power that is given to the pile by the disposition of its masses, and the contribution that every member of it makes to the total effect.

Baltimore contains another very interesting specimen of an amphitheatrical church, designed by Mr. Cassell, in which the amphitheatre is not only completely



CHURCH,

Baltimore, Md. Chas. E. Cassell, Architect.

expressed but constitutes the building, the addition of a portico following its curve and framed between two apses, being simply an extension of it. The scheme is effective as well as expressive, and the scholarly detail is well calculated to carry out the effectiveness of the general disposition, which is still further enhanced by the combination of material employed, a light sandstone for the wrought work and a light granite for the wall field, with a roofing of glazed and corrugated dark tiles. The relation of the roofs and arcades of the flanking apses to the taller roof and arcade of the auditorium, and of the portico with its central pediment to all these is as harmonious as it is original, and the architect is very much to be congratulated. But it may be questioned whether this disposition would not have been even more successful if the circular building had been set upon a rectangular base, of which the rigid angles, if they had been treated as skillfully as the superstructure, would have given an assurance of stability which can scarcely be attained, or at least which has not been attained, in a building of which the plan is throughout curvilinear. Moreover, such a disposition would have enabled the architect to ally with his church the subordinate building which now appears quite extraneous to it if not incongruous with it. In an attempt so new as that here made, and upon the whole so successful, errors or shortcomings of detail may be condoned on much easier terms than in a case in which the designer is working upon the lines of an accepted type. The architect is entitled to the high praise of following out with fidelity the indications of his problem, and of having thus produced a successful and novel work, of which the novelty is not sought but comes of itself.

A Jewish synagogue, also in Baltimore, and built of a combination of



BALTIMORE SYNAGOGUE,

Baltimore, Md.

Chas. L. Cárson, Architect.

materials similar to that of the church just described, is a striking work to which some of the details give a Romanesque character, but which in its general treatment belongs much more to the Eastern or Byzantine than to the Western or Romanesque departure from Roman architecture. The architects of synagogues in our time seem to be pretty well agreed that their works should have some suggestion of the Orient and they look for their precedents for the most part in the great repertory of Saracenic architecture. There is assuredly nothing of Saracenic in the design of the Baltimore synagogue, while the impression it makes is assuredly Asiatic, or at least Slavonic, if not distinctly Semitic. This is given to it mainly, if not entirely, by the bulbous and lustrous domical roofs of the towers and of the centre, features that even recall the Russo-Greek development of Byzantine architecture. In fact these clever and ingenious terminations alone designate the style, for if they were removed, and the octagonal shafts of the towers, the building would lose not only its Oriental character but the greater part of its architectural interest. It would not lose the impressiveness that it derives from the extent of massive wall of which the openings are so placed and so designed as to punctuate the mass. An exception to this rule occurs in the projection of the wall between the towers, and in the violent exaggeration of the size of the central opening, of which the exaggeration is rendered of no effect by the lack of modelling and by the equal exaggeration of the subdivisions. The meaningless cornices that traverse the walls at the foot of the gables are as far from being Oriental as they are from being Romanesque, and recall rather specimens of our colonial architecture than of any manner of building more germane to the designer's purpose. They give the building, indeed, the air of a "meeting-house" furnished with minarets, and that is scarcely the aspect that belongs to a synagogue. Doubtless a horizontal belt at this point is desirable, but the device employed does not supply this requisite. Indeed, the gables themselves are incongruous with the purpose and the treatment of the building, and it seems as if hipped roofs would not only have brought the substructure more into congruity with its crowning features, and supplied a motive for the horizontal band that is now motiveless, but would also have considerably improved the relation between what is now a somewhat commonplace and a somewhat awkward building, and a dome and towers which have spirit and character—a relation that at present is not fortunate.

In commercial architecture there is scarcely an American city, unless it be in the far South, which does not contain specimens of what the designers at least believed to be Richardsonian Romanesque, and many of them are of a high interest. The prototype of many of them is Mr. Richardson's own Field building in Chicago, which was perhaps his most important and successful work in that kind. The reproductions of it are not commonly very successful, and scarcely one is worthy of a comparison with the original, although analysis might have led an architect very much inferior to Mr. Richardson in power to advance upon it by avoiding such defects as became obvious in execution. The great commercial buildings in Chicago, designed by Messrs. Burnham & Root, are distinctly Romanesque in their inspiration, though they owe little directly to Mr. Richardson, and indeed testify to a very distinct artistic individuality in their designer. As building projects, so to speak, apart from their architectural merits, they have a very high interest, for scarcely any other American city has such a piece of intelligent planning and administration on so great a scale for housing a great colony of business men in the most commodious fashion as is presented by the Rookery, or, in another department, an enterprise on an equal scale so well conceived and executed as Messrs. Adler & Sullivan's Auditorium. In respect of architecture the Art Institute, admirably discreet and quiet and well-studied in its design, is as unmistakably Romanesque as it is unmistakably individual, and the successful feat-



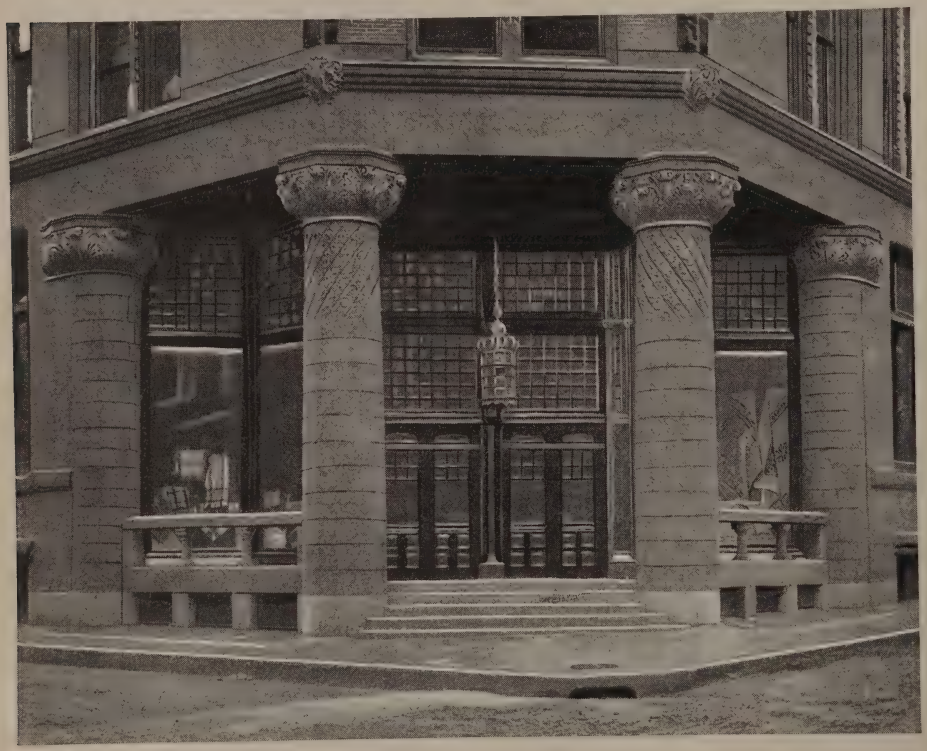
Boston, Mass.

YOUTH'S COMPANION BUILDING,

H. W. Hartwell and Wm. C. Richardson, Architects.

ures of such buildings as the Insurance Exchange and the Phœnix have the same quality. By far the best of these features and one of the most artistic pieces of architecture in the country is the entrance to the Phœnix building. The admirable building of the *Pioneer-Press* in St. Paul is an extension rather of the work of Mr. Root than of that of Mr. Richardson.

the value of land must be great to justify the rearing of a taller structure. Some of the most distressing architectural results of the elevator have been produced in places in which common sense has been so far overridden by local pride or personal vanity as to induce an owner to rear a building twice as high as is called for by the obvious conditions of the town to which it is ex-



ENTRANCE TO WAREHOUSE,

Boston, Mass. Peabody & Stearns, Architects.

There is a distinction to be taken between the commercial architecture that preceded the elevator and that to which the elevator has given rise. The limit of commercial building, when the elevator is not employed, is five stories, or at the utmost six, and such a building offers a problem so much easier and more inviting to a designer that he is entitled to congratulate himself upon it. Of course, even a five-story building is more commodious and desirable with an elevator than without it, and pected to be an ornament and upon which it is in fact a monstrous excrescence. Such a straightforward and practical design as that of the building of the *Youth's Companion* in Boston, which owes most of its architectural effect to its evident straightforwardness and practicality would have its difficulties increased by an addition even of another story, and after that the increase would be in a geometrical ratio. Here the design consists in the grouping of the first two stories into an architectural



WAREHOUSE,

Boston, Mass.

Peabody & Stearns, Architects.



DESIGN FOR FINE ARTS ACADEMY,

San Diego, Cal.

Cyrus L. W. Eidlitz, Architect.

basement, united by the emphatic string course that separates them from the superstructure, and by the large arched entrance that includes them both; in the grouping of the next two by the prolongation of the openings, and in the superposition of a light and simple attic, while the corners are strongly reinforced by the widening of their piers and the solidity of their treatment, relieved in the lower story only by a single arched opening at the centre of each. This treatment gives the building to which it is applied an aspect that is not only commercial but eminently business-like, but the problem here is by no means that presented by the typical American business building of to-day, and in this instance its solution is facilitated by a very ample area. It is to the solidity of these corners that the building mainly owes its Romanesque character, for the arcades framed between the piers, though detailed in tolerably consistent Romanesque, are of a lightness quite foreign to the style.

Boston contains another interesting example of a Romanesque commercial architecture in a warehouse built some years ago from the designs of Messrs. Peabody & Stearns, where the architects had the same advantage of a considerable area and a moderate height. The building is of five stories, of which the lowest is given to the basement and the uppermost to the attic, while the three intermediate are strongly bound together into a single division by the prolongation of the openings. The piers reserved at the angles are ample, and the treatment is of an appropriate severity. The openings of the basement are absolutely



LADIES' WAITING ROOM IN STORE.

Boston, Mass. Peabody & Stearns, Architects.



THE PUBLIC LIBRARY,

New London, Conn.

Shepley, Rutan & Coolidge, Architects.



CHRIST CHURCH,

Andover, Mass.

Hartwell & Richardson, Architects.



DESIGN FOR FIRE HEADQUARTERS,

Brooklyn, N. Y.

F. Freeman, Architect.

plain; the decoration of the central division is very sparing and strictly limited to the expression of the structure in the rough labels of the openings and the quoining of the angles, and to an effective emphasis of the impost of the arches. The attic might perhaps properly have been more lightened and enriched, for though it is subdivided, the treatment of it is as massive and rude as that of the basement. In any case it needs an effective cornice, and its base, in which the use of the columns, which might perhaps advantageously have been made still more sturdy than they are, secures a free circulation without seriously compromising the apparent stability and massiveness of the work. This feature seems to have attracted the admiration of the designer of the Central Savings Bank in Baltimore, in the entrance of which its design is reproduced, with modifications, of which the thickening



THE MARYLAND CLUB,
Baltimore, Md.
Baldwin & Pennington, Architects.

the more with the baldness of the treatment adopted, instead of the plain parapet, with no projection at all, by which it is surmounted. In a building of which it is impracticable to exhibit the roof, it is the more necessary to suggest it by means of an emphatic cornice, and the omission of it here entails much the same unfortunate failure of expressiveness that would be inflicted upon a human countenance by the omission of the eyebrows. On the other hand, the treatment of the truncated angle, in which one bay of the fronts is reproduced, is extremely effective, as is that of the entrance at of the lintel and the shortening of the columns are decided improvements, as enhancing the expression of strength at a point where that expression is urgently needed. The Farmers' and Merchants' Bank, also in Baltimore, a building which is evidently meant as an example of Romanesque, shows again the facility for an effective disposition which is given by a moderate number of stories, and the general arrangement of a tall and massive basement of three grouped stories and of an attic above, is well marked and well proportioned, and it is emphasized by the introduction at the angle of a corbelled oriel



THE MERCANTILE TRUST AND DEPOSIT CO.'S BUILDING,
Baltimore, Md.
Wyatt & Sperry, Architects.

running through the main division. It is not so happily detailed as to secure all the effect the general scheme promises. Indeed, there is no detail which can be called felicitous, while there is a conspicuous infelicity in the introduction of the two-story projecting sash-frames in the principal division, an infelicity which is aggravated by their treatment. The Maryland Club, a building in the white Baltimore County marble, by the same designers, equally an example of Romanesque, is, as to its detail, a much more satisfactory example of their skill, and the gabled centre of the principal front is a broad, massive and effective piece of design. It will be seen, however, that the tower at the angle is not fitted, either by its dimensions or by its design, to effect its architectural purpose of uniting and dominating the two fronts.

The most admirable of the commercial buildings of Baltimore is doubtless the Mercantile Trust and Deposit Company, though it is only with some hesitation that it can be classed as an example of Romanesque. The short stout columns of the colonnades are



CENTRAL SAVINGS BANK BUILDING,
Baltimore, Md.

Chas. L. Carson, Architect.



THE FARMERS' AND MERCHANTS' BANK,

Baltimore, Md. Baldwin & Pennington, Architects.

Romanesque, and so are the massive columns of the entrance, in which the same device we have just seen is repeated, of merging the columns into a supporting wall without the intervention of bases, and the carving throughout is Byzantine. Other detail, however, as that of the openings in the gables and the fret of the screen wall in the colonnades, is as unmistakably classic. In fact, in spite of the mixture of styles, the total effect of the building is one of classic purity, by reason of the art which has been bestowed upon the proportioning of its masses and the adjustment of its detail. One need not know even so much about the requirements of the building as the inscription tells him to be assured that these have supplied the basis of the design and that the building is the outcome of them, so straightforward and expressive is the treatment throughout. It is very rarely that an architect has the good fortune to design a building, especially a commercial building, of which a chief requirement is the lower stage shall be almost an unbroken mass of wall; and it is still more rarely that his work shows a



MR. WINAN'S STABLE,
Baltimore, Md.
Wyatt & Nölting, Architects.

consciousness of his good fortune. The ordinary designer, given a considerable expanse of blank wall, is apt to show even an impatience of it and a desire to "do something" with it. Here the basement of the longer front is a wall quite blank except for the entrance at the centre, the simplicity and massiveness of which emphasizes instead of relieving its expanse, which is further emphasized by the introduction in its brick-work of narrow courses of stone that not only develop its lateral dimension, but increase its apparent strength by the expression of bonding. A continuance of this treatment through the superstructure would result in a grievous monotony. This has been avoided in the principal front by the development of the triple division merely indicated in the basement into two gabled wings and a depressed centre, which is itself much lighter and more open in treatment than the flanking walls. On the side it is avoided by the range of four colonnaded openings, still very massive in treatment, at the centre of the basement, and by the repetition in the upper story of the central feature of the longer front. Perhaps the happiest point of the composition is the intervention of the frieze between the upper and lower stories, which brings them into harmonious relation and gives the building an effective triple division vertically. The detail is as carefully and successfully studied as the general de-



WAREHOUSE,

St. Louis, Mo. Shepley, Rutan & Coolidge, Architects.

sign, whether it be the strictly architectural detail of structural members and of mouldings, or the strictly decorative detail, such as the panel in terra cotta between the stories at the centre of the side. We may classify this building as Romanesque, upon the ground that it is more Romanesque than it is anything else, though it might nearly as well be called Neo-Grec. It has, at any rate, a high degree of massiveness and simplicity without degenerating anywhere into rudeness or clumsiness, and it is an unmistakably eclectic building, of which nevertheless the predominant impression is of purity. This is an unusual triumph in contemporary architecture. A brick stable in Baltimore, though in comparison a very unpretentious work, shows these same qualities almost in an equal degree, and is almost equally successful in its kind.

It is in "elevator architecture," however, that the test of the applicability of a style to commercial uses must be sought, while it is in elevator architecture that it is most clearly out of the question to produce examples of Romanesque or of any other historical style. It is like attempting to write an essay upon the events of the day in classic Latin. It cannot be done without the use of locutions

> "That would have made Quintilian stare and gasp."

One can of course use Romanesque details, and even Romanesque features in unmistakably modern buildings; and one can, if he have skill enough, give a Romanesque character, the character of massiveness and simplicity, of "rest and immobility," even to a modern warehouse or office-building. One of the most interesting essays in this kind is the Limberger warehouse in St. Louis, of which the design was obviously enough suggested by Mr. Richardson's very impressive Field building in Chicago. Like that, this is but of seven stories, and so much more manageable than if it were taller, and it has the further advantage of an ample area, though by no means so great as that of its vast prototype. The chief resemblances are in the segmental arches of the basement, of which the treatment is almost identical, except that in the later work they are continued to the ground, in the great arcade of three stories next above the basement and in the rugged and almost cyclopean expression of the masonry. The differences are marked and interesting. In the Field building there is no lateral division except what is enforced by the great openings and is recognized above by the piers of the upper arcade and by the piers of the colonnaded attic. This treatment of course emphasizes the lateral extent of the building, and is more appropriate to a building of great magnitude where it is practicable to arrange a series of openings innumerable, or not readily numerable, by the eye, than in a building of moderate dimensions. In the later building, the division into bays is insisted on and marked by a projecting strip of pier which is continued downward from the attic until it merges into the battering basement. The attic of the Field building, in spite of the interruptions caused by the reappearance of the lower piers, is virtually almost a continuous colonnade, while in the Limberger building it consists of three square openings in each bay, and enforces the division below. All these changes may be regarded as due to the changed conditions of the problem in which, the magnitude not being of itself so impressively great, it is the less desirable to make sacrifices to its development; and they do not necessarily imply any criticism upon the model. It is otherwise with the substitution, above the great arcade, of two stories of lintelled openings, four in each bay, for the two-story arcade of the Field building, with openings doubled over each of the larger openings below. Doubtless this change implies a criticism, and the criticism seems to be just, whether or not it has been quite successfully obviated. Without doubt the superposition of the arcades is the least successful point of design in the Field building, since the scale of the upper is not so much less as to make it coöperate with the lower, or seem a subordinate appendage to it, but allows the upper to assert itself as an independent and competing member



AMES BUILDING,

Boston, Mass. Shepley, Rutan & Coolidge, Architects.

of the composition. The same defect appears in the design of the New York Produce Exchange. The change of motive in the St. Louis warehouse is therefore not a capricious variation, and the two tiers of lintelled openings do not compete directly with the arcade, though it cannot be said that they directly coöperate with it or contribute to its effect, as would be necessary to the complete success of the design. A more successful composition in this respect is that of the Masonic building in Pittsburg, a front of six stories in dark brown stone. Here the basement is of two stories, while a tall arcaded attic of a single story traverses the whole front, whereas below, the centre of the building, three openings wide, is framed between wings more massively treated, and each pierced in each story with a single opening much smaller than the openings of the centre. This arrangement allows of the introduction of a store front with supports as attenuated as a store front demands, but which is saved from the disastrous result that usually ensues from such attenuation, both by the solidity of its frame and by the general massiveness of the treatment. Above this the central division consists of three tall stories, of which the openings of the upper are lintelled, with mullions and transoms, while the other two, though grouped by the continuation of the openings, which are closed by traceried arches, are nevertheless sharply distinguished from each other by an emphatic transom at the floor line. The feature thus formed, and effectively framed by the flanking piers, evidently consists of three members, of which the uppermost is an effective culmination, as neither the two-story arcade of the Field building, nor the two stories of lintelled openings of the Limberger building can be said to be.



MASONIC BUILDING,
Pittsburgh, Pa. Shepley, Rutan & Coolidge, Architects.

Perhaps part of this difference may be attributed to the greater difficulties of design that a building of seven stories presents over one of six. However that may be, it is certain that the difficulties of the designer of an elevator building, properly so called, increase very much more than directly as its height. The Ames building in Boston presents one of the really crucial problems of elevator architecture, a building of moderate area and of immoderate altitude, of which all the stories are to be put to the same or very



BOSTON & ALBANY R. R. STATION,

Springfield, Mass. Shepley, Rutan & Coolidge, Architects.

similar uses. So successfully has this problem been solved in the Ames building that this edifice has been chosen by Professor Kerr, in his continuation of Fergusson's "History of Modern Architecture," as the typical specimen of American elevator architecture ; and it would be hard to make a better choice. A three-story basement of light granite carries an eight-story superstructure of light sandstone, which in turn is surmounted by an arcaded attic and a cornice of very great projection, an incident of which is still another story. With a fourteen-story building, on a site of not much more than 6,000 feet in area, a tower-like treatment is absolutely enforced ; and such a treatment has been carried out here, upon the whole with brilliant success. Nothing

could well be happier than the design of the basement, in which the designer had the advantage of one story considerably more important than the others, and which of itself has an unmistakable and harmonious triple division. Nor does the treatment of the upper member of the composition leave anything to be desired. In such a building, where it is impracticable to exhibit the actual roof, the summit, as all architects of successful spireless towers have found, must be strongly marked and the roof that cannot be shown must be suggested ; and here this purpose is admirably attained by the spreading cornice. The central and chief division, the shaft of the tower, so to say, is not only justly and effectively proportioned to its supporting and to its crowning member, but it is very effectively framed between the plain and solid corners that give an assurance of strength and stability. In the design of the stories thus fortified there arises the same difficulty that we have noted in the Field building and in the Limberger building. The motive of the latter has been adopted here, and an arcade of five stories carries three stories of lintelled openings, with the effect less of a combination than of a competition. We may grant that an identical treatment of eight stories would be intolerably monotonous, though with the variety secured here by the treatment of the basement and the attic that does not seem quite certain. At any rate, in a building that has a general triple division, the sub-division of one of the principal divisions into two masses, of which one is not a mere appendage to the other, seems an error. At least the result of it is not completely fortunate in any one of the three buildings in which we have been considering it. If the predominant member of the composition must be sub-divided, it seems that it must again be triply sub-divided like the whole into a beginning, a middle and an end of its own, as is so effectively done in the front of the Masonic building at Pittsburg. The defect thus indicated does not prevent the Ames building from being a very impressive and dignified work, equally admirable in mass and in detail, and perhaps the most successful example in the country of the adaptation of Romanesque architecture to an extreme requirement of "elevator building."

The distinction between engineering and architecture is very modern, and it really applies less to the character than to the classification of the works which are by custom allotted to the practitioners of these arts respectively. The erection of a twelve-story building on an untrustworthy soil is a problem involving as much mechanical knowledge and consideration as most engineering works. Engineering, like architecture, is the art of building, but in modern practice it is the art of building structures which are works of bare utility, and of which the owner does not much care how they look, though of course there is no reason why a bridge should be less a work of fine art than an office building. Until within a few years all structures pertaining to railroads were allotted to engineers as a matter of course, except in the case of important city stations where architects were called in to furnish exteriors to the works of engineers, and where we may see the structures which the architects were not enough constructors to be intrusted with adjoining the structures which the engineers were not artists enough to be intrusted with, with an effect of much confusion and incongruity. Although this practice is by no means obsolete, there is an increasing tendency to intrust the design of stations to architects. As we have seen with regard to the Mott Haven station at New York (*Architectural Record*, No. 1, p. 25), and as many other instances might be adduced to show, this practice has resulted in great benefits to people who care about architecture. One of the most striking of these instances is the station of the Boston and Albany Road at Springfield, a group of buildings of high architectural interest, of which an illustration is given. There is an inherent force in the long and low and sturdy arcade of the *porte-cochère* that it could not wholly have lost if treated with the baldness of ordinary engineering work, but it is evident how greatly



Springfield, Mass. BRIDGE OF BOSTON & ALBANY RAILROAD, Shepley, Rutan & Coolidge, Architects.

this impressiveness has been heightened by the careful proportioning and adjustment of the parts, by the definition of the impost and of the arches, and by the sparing but effective decoration which helps to express this arrangement; and these things are the fruit of a strictly architectural training. A still more noteworthy example of the advantages of this training is furnished by the bridge that carries the railroad over a street, and that belongs to the category of works usually relegated by common consent to the engineer. It is here still more noteworthy because here there is no ornament, not so much as a moulding except in the upper members of the flanking turrets, but the whole force of the work resides in the disposition of the masses which again merely expresses the facts of structure. An arch of 70 feet span with so slight a rise as this obviously needs for its stability voussoirs of great depth, and the great depth of voussoir, which so often appears a merely capricious exaggeration, is here seen to be neither a caprice nor an exaggeration but the simple and straightforward response to a real requirement of the structure, while the single unmoulded course at the extrados serves to define the arch. Another obvious requirement in an arch so broad and low is an unusually ample abutment. This abutment is doubtless in fact provided by the prolongation of the wall, but it needs to be expressed and emphasized to furnish a visible guarantee of the sufficiency of the abutment and the immobility of the arch. This is the purpose that is served by the turrets. Perhaps it might have been even better served if these flanking masses had been rectangular instead of curved in plan, for as we have already seen, a circular base has not the same aspect of rigidity as one that shows corners. The poet knew what he was about when he likened his hero to a

> "Tower of strength
> Which stood four-square to all the winds that blew,"

and would by no means have produced the same effect if he had compared him to a round tower. It is questionable, also, if the general ruggedness of the treatment, perfectly appropriate to its purpose, might not have been mitigated with advantage in the parapet. This is in fact merely a screen, and as such its only requisite is that it should be opaque. By giving it an aspect of great weight and massiveness, it is made to increase the apparent load upon the arch, and in consequence the apparent thrust against the abutments. But that the design of a railroad bridge should tempt one into these minute criticisms is in itself a testimony to the immeasurable superiority of the work so criticised as a work of art to the usual works of its class, and really an additional tribute to the success of the design.

In city houses throughout the country the influence of Richardson has been perhaps even more marked than in any other class of buildings, but in most cases it has operated by the unprofitable method of direct imitation, and has consisted in fastening "features" from his work upon buildings of inconsistent physiognomies, or no physiognomies at all, which is much as if one should attempt to make up a countenance from a collection of mouths and eyes and noses, "by taking the best parts out of divers faces to make one excellent," as Bacon accused Albert Durer of doing. Such a procedure no more leads to ideal beauty in architecture than in painting. There are doubtless many single dwellings of which the designers have been inspired by Richardson's work to do something good in the Romanesque spirit, but in their own way. Summit avenue in St. Paul, the north and the south sides of Chicago, and Mount Vernon square in Baltimore furnish interesting examples, and in the last-named city Mr. Cassell has attempted, with a considerable degree of success, a row of dwellings of moderate size and pretensions, of which the spirit is undeniably Romanesque. In many of Mr. Richardson's own city houses the Romanesqueness is carried much further than a consideration of what ought to be the aspect of an American city house in our day would warrant. The rectory of Trinity Church, Boston, remains one of

the most interesting of his essays in this department, and it is the more interesting and suggestive because, with all its spirit and picturesqueness, it is still a decorous and well-behaved city house, a residence suitable for an American gentleman. While the imitators have been at it, it is rather surprising that they should not have imitated much more extensively the device of withdrawing and sheltering the steps and the "stoop" behind the front wall, a device which is as sensible and practical in our climate as the architectural outcome of it is here effective.

In a country house much more of fantasy can properly be indulged, but even in a country house it is doubtful whether many architects have the good fortune to fall in with clients who desire these dwellings to wear a really Romanesque aspect. One such is evidently the owner of the massive and rugged and picturesque country house in Massachusetts, the photograph of which one would be likelier to take for a chateau of the twelfth century in Languedoc than for the residence of a "railroad magnate" in our prosaic time, and in matter-of-fact Massachusetts. But there can be no doubt either of the satisfaction with which a sensitive American architect must hail such an opportunity, or of the satisfaction with which a sensitive American observer contemplates the use that has been made of it. A much simpler and smaller and more conventional country house near Baltimore shows the applicability of the style to the more usual problems of the American designers of country houses.



RESIDENCE OF GABRIEL DU VAL, ESQ.,
Near Baltimore, Md. Wyatt & Nölting, Architects.

Such an array of buildings in so many different kinds, some admirable, many suggestive and nearly all in some degree interesting, constitutes at once an impressive demonstration of the extent to which the Romanesque revival

has already gone, and a promise that in the future it may go further and fare better. What we have called the Richardsonian Romanesque has for the most part been done within the past five years, within the years that have elapsed since the death of Mr. Richardson himself. While he was living and practising architecture, architects who regarded themselves as in any degree his rivals were naturally loth to introduce in a design dispositions or features or details, of which the suggestion plainly came from him. Since his death has "extinguished envy" and ended rivalry the admiration his work excited has been freer to express itself either in direct imitation or in the adoption and elaboration of the suggestions his work furnished. These pages have furnished illustrations of both these processes. The body of Romanesque work in this country is now more extensive, and upon the whole more meritorious than the building of any style which our architects had previously taken as the point of departure for a "movement,"



COUNTRY HOUSE,
Dedham, Mass.
Shepley, Rutan & Coolidge, Architects.

excepting only the Gothic revival. That an architect must build upon the past is plain enough. It is equally plain that if he means to produce an artistic result, he must select, as a starting point, some phase of past architecture in which a definite style, "a consistent system of construction and decoration," has already been attained. Rightly construed, this apparent limitation is not a real limitation. It does not forbid eclecticism, as we have seen in several of the most interesting works illustrated in these papers; it requires only that eclecticism shall be so conducted as not to impair the impression of artistic unity, of style, of "a consistent system of construction and decoration." One may compose well in any style that fulfills this definition, and may add to it details and features



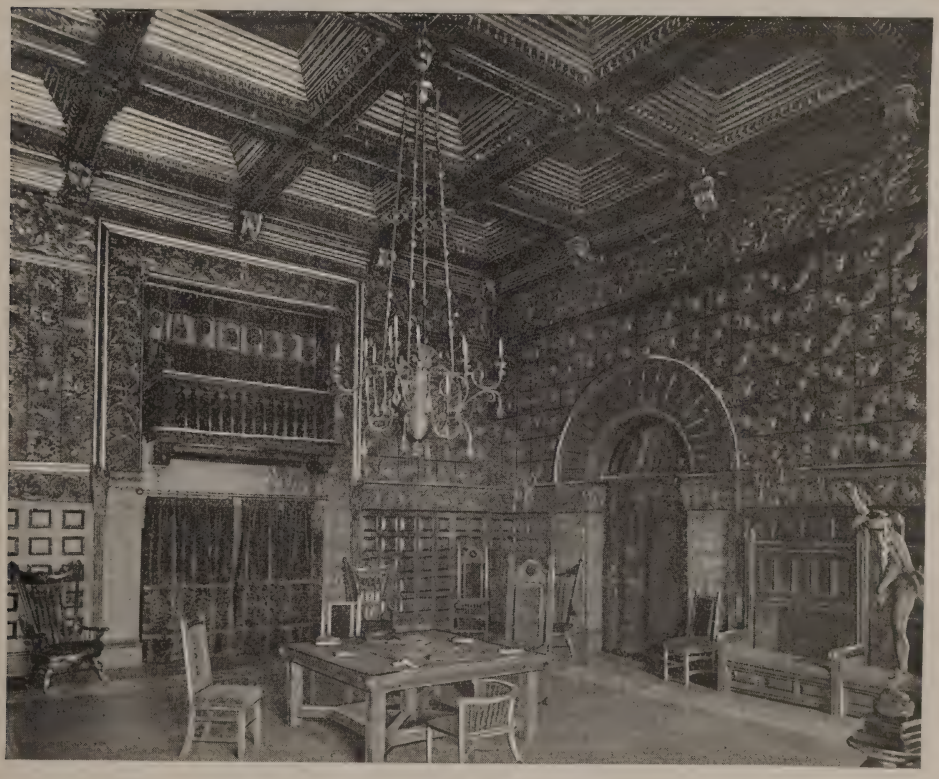
Newport, R. I. RESIDENCE DESIGNED FOR THE LATE MISS CATHARINE L. WOLFE, Peabody & Stearns, Architects.



STAIRCASE IN COURT HOUSE,
Pittsburgh, Pa. H. H. Richardson, Architect.

which the past practitioners of the style did not use, just as one may write well and purely in any language without confining himself to the vocabulary of its classical literature when he has something new to express. A style like a language is dead when it ceases to grow and change. This is a very different thing from a hodge-podge of eclecticism which attests either the eclectic's ignorance of "styles" or his insensibility to style, or both. We do not look for any masterpieces of prose or verse in Volapük. Nor is the selection of an historical style as a starting-point inconsistent with life and progress, provided the style chosen be in itself rational and consistent, and provided it be chosen as a point of departure. The style which has prevailed throughout continental Europe for three centuries is not such a style. It is not a consistent system of construction and decoration, because it uses one system of construction as the decoration of another system of construction. It is

essentially the "classical or transitional Roman," and no progress in it is possible until it is freed of its inherent contradictions. The Romanesque builders, as we have seen, freed it of its contradictions, giving the antique column a function to perform in an arched construction, and discarding altogether the antique entablature. The French architects have, indeed, made essays much earnest and intelligent and some brilliant work, it failed to "impose itself." The reason is not very far to seek. In the hands of all but its strongest practitioners the American variety of Victorian Gothic became a thing of shreds and patches, of which the effect was so uneasy that the judicious observer was often led to wish that the incompetent designer had remained

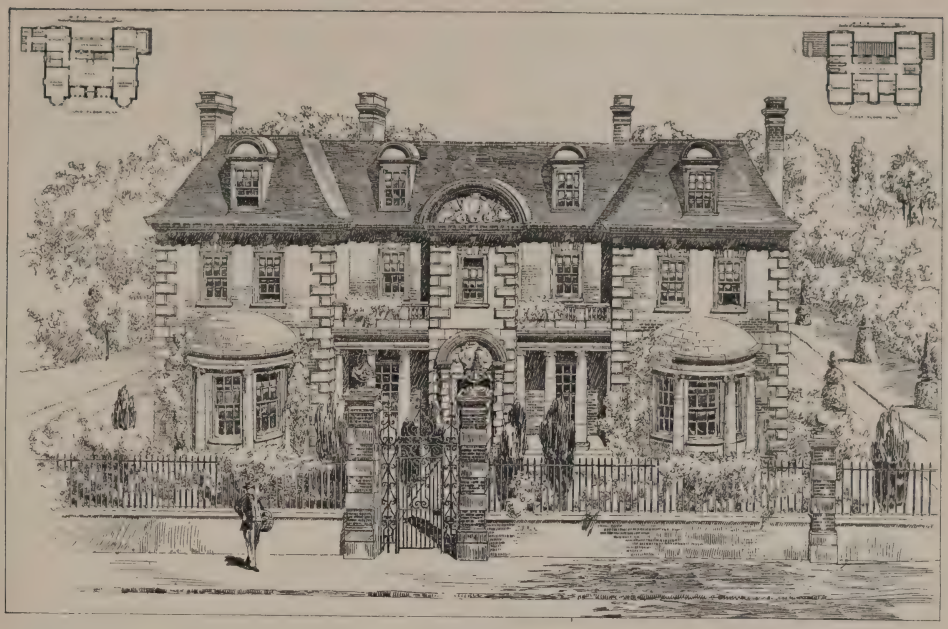


WAITING ROOM IN STORE,
Boston, Mass. Peabody & Stearns, Architects.

towards rationalizing their official style, as in the omission of the orders in such a building as the library of Ste. Genevieve, or as the reversion to a lintelled construction in such a building as the Faculty of Medicine, but these isolated exceptions emphasize the rule of irrationality. For our purpose the choice of a point of departure may be taken to lie between the two phases of mediæval architecture. The Gothic we have already tried, and in spite of in the comparative safety of the American Renaissance. The expression even of the historical masterpieces of Gothic art, doubtless the most wonderful and intellectually the most admirable of all the works of man in the art of building, is the expression of ideas and sentiments that do not belong to our time. Mr. Moore contends, with much force, that the only truly Gothic building is a fully developed cathedral; and indeed it is evident that the vast

repertory of detail and of ornament which Gothic architecture has bequeathed to us was very largely developed from the buttress-system of which the cathedral was the perfect and typical example. Romanesque is, indeed, not applicable to all our needs. It is essentially and almost exclusively an architecture of stone-work. It furnishes no precedents for timber construction, and very few for brick-work, since a building in which brick is used merely for the fields of wall, and stone for the features, is not an example of an architecture of baked clay. Nevertheless, Romanesque may be commended as a point of departure for modern architects precisely because it has never reached its ultimate perfection, as Gothic did. There is not in the world what may be called a completely typical specimen of Romanesque in the sense in which there are completely typical specimens of Greek Doric or of French Gothic. In this there is still room for improvement, for development. As the besetting tendency of Gothic is to tenuity and complication and unrest, so the besetting tendency of Romanesque is to clumsiness and crudity and rudeness. Where mass and weight and power are to be expressed it leaves nothing to be desired, but we can scarcely point either in the original or thus far in the revived Romanesque, to a design that can fairly be called "elegant." Yet elegance is a quality as suitable for architectural expression as force, and no style can be accounted complete until it is adequate to every expression. It is in this direction that modern architects may develop Romanesque into the elegance of later Gothic, without direct resort to Gothic precedents, and without losing the vigor and massiveness of Romanesque as we know it, where these qualities are required. It is not by any means a question of pointed arches or round. History shows plainly enough that the pointed arch was introduced, not at all because the designers who introduced it preferred its form to that of the round arch, but because they needed it as a constructive expedient in the development of the vaulting system. The proof is furnished by the many transitional buildings of which the builders used round arches where they could and pointed arches only where they must, and the apertures of the walls were at last pointed only in order to conform to the structural arches the form of which was determined by their function. We are no longer bound by the exigencies of a vaulting system, and the development of Romanesque in the direction of elegance and refinement, which is the one thing needful to adapt it to all that we require of an architecture in masonry, need not take again the same direction which it took in the thirteenth century. A too literal adherence to Romanesque precedents on the part of a modern architect does not, as we have seen, reproduce the effect of simplicity and *naïveté* that is made by the work of the early Romanesque builders who were working towards the solution of problems which their successors solved, and of which we know the solution. What was childlike in their work is childish in ours. It is by beginning where they left off and not where they began—by taking their work as a point of departure and not as a point of arrival, that the architects of our day can create the beginnings of a true and living architecture, such as for four centuries the world has not seen. The Romanesque revival in this country is the most promising sign of such a movement that has yet appeared.

Montgomery Schuyler.



London, Eng. RESIDENCE, R. A. Briggs, Architect.

WHAT IS ARCHITECTURE?

FIRST let us marshal the authorities :

"The art of building specifically of fine or beautiful building. Architecture includes, in the widest sense—(1) the principles of design and of ornament as applied to building; (2) the science of construction, including the properties of materials and the methods of combining them; and (3) the practice of construction, including estimates of cost and the directing of builders and workmen. The practice of this art requires skill in design, which is the special province of the architect, and skill in execution, which is the special province of the workman whom the architect employs and directs. It is the function of skill in architectural design to combine in a harmonious scheme the independent and often hostile requirements—(1) of use and convenience as dictated by the conditions of the problem in hand; (2) of constructive necessity and fitness as determined either by practical experience or by scientific theory; and (3) of artistic excellence in the proportions of the parts and in the decorative treatment of details, in accordance with either principles and canons of good taste or the prescriptions of custom or tradition. It is the function of skill in execution practically to carry out the scheme so designed; and this skill is exercised by draftsmen, surveyors, mechanics, artisans and artists, each in his place. Architecture is properly distinguished from mere building by the presence of the decorative or artistic element."—*Century Dictionary*.

"Architecture is the art of building according to principles which are determined, not merely by the ends the edifice is intended to serve, but by considerations of beauty and harmony. It cannot be defined as the art of building simply, or even of building well. The end of building as such is convenience, use, irrespective of appearance; and the employment of materials to this end is regulated by the mechanical principles of the constructive art. The end of architecture as an art, on the other hand, is so to arrange the plan, masses and enrichments of a structure as to impart to it interest, beauty, grandeur, unity, power. Architecture thus necessitates the possession by the builder of gifts of imagination as well as of technical skill, and in all works of architecture properly so called these elements must exist and be harmoniously combined. The greatest works of the architect must always be those in which the imagination of the artist is most plainly seen."—*Encyclopædia Britannica*.

"Architecture is the art which so disposes and adorns the edifices raised by man for whatsoever uses, that the sight of them contributes to his mental health, power, and pleasures. It is very necessary, in the outset of all inquiry, to distinguish carefully between architecture and building."—*Ruskin.*

"Ornamentation is the principal part of architecture. That is to say, that the highest nobility of a building does not consist in its being well built, but in its being nobly sculptured or painted."—*Ruskin.*

"The proper definition of architecture is merely the art of designing sculpture for a particular place, and placing it there on the best principle of building."—*Ruskin.*

"Architecture is nothing more or less than the art of ornamental and ornamented construction."—*Fergusson.*

"The forms of combinations in all styles of architecture are but so many means of suiting the climate and country in which they are used."—*Gwilt.*

"Architecture, the art of building, includes two elements, theory and practice. The former comprehends the fine art side proper, the body of the general rules inspired by taste and based on tradition, and the science which admits of demonstrations by means of invariable and absolute formulas. Practice is the application of theory to particular needs; it is practice which causes the art and the science to conform to the nature of materials, to climate, to the customs of a period, or to the necessities of the occasion."—*Viollet-le-Duc.*

"Architecture is the art of construction according to the principles of the beautiful."—*Blanc.*

"The attentive study of the architecture of the different people of antiquity shows us in an unmistakable manner that what we call the style and character of the architecture is not only determined by the taste and needs of the population, but is influenced even by the nature of the country in which the ancient architects exercised their arts."—*Texier and Pullan.*

A truly astonishing variety which it would be easy to extend, but these are ample evidence of the opinions of the doctors, thus reflecting, in a degree, the opinions of lesser folk whose opportunities for forming a judgment on such a subject is more limited than those who have made architecture their life work. At the best the art of defining is a difficult one, and it is especially so in a subject embracing so many different elements as architecture. As a matter of fact, most of those who have essayed to define the word have solved the problem by either limiting it to beautiful work or to that in which beauty or ornament—two terms apparently closely united, but frequently thoroughly opposed to one another—are included. Mr. Fergusson, whose enormous popular following is only exceeded by his general untrustworthiness and unsuitability as a chronicler of architectural history, took the trouble to illustrate his definition by a diagram, at one end of which was a structure whose hideous plainness was much like an ordinary factory, and which through a series of applications of various quantities of ornament and decoration was transformed, at the other end, into a palatial façade of truly amazing proportions. This was architecture; the other stages of the progression were buildings or constructions.

No distinction could well be more misleading, and it would have been hard to have composed a more artificial definition. It is true there is an impression among general readers and observers, as well as specialists, who should know better, that if architecture is not ornamental or ornamented building, it is not far from it. Mr. Ruskin, for example, has devoted much of his life to the composing of definitions of architecture, and has propounded some of the most extraordinary and fanciful conceptions that have been given to the world, yet every one of them is but the expression of his own ideas, his individual impression, the statement of what he thinks architecture is or should be.

The fact is, the definers of architecture base their definitions upon what they see around them. They are fascinated by the great monuments of architectural art and refuse to admit anything unpretentious into their field of vision, unless forced to do so by the paucity of other memorials. In the present day we do not build monumental structures to feast our eyes upon, but many writers obviously compile their definitions upon modern practices and needs. The complex conditions of the day lie at the base of their meanings, not the historical associations or the story contained in



Paris. CHURCH OF THE SACRED HEART, The late M. Abbadie, Architect.

the record of the art from immemorial ages.

Architecture is the most ancient of the arts. Not as we know it, not as it was practised in ancient Egypt or Assyria, or even in the stupendous monuments of ancient India, of unknown age and origin. If "architecture is the art of building according to principles which are determined, not merely by the ends the edifice is intended to serve, but by considerations of beauty and harmony," then indeed is its origin recent and its history comparatively modern. But the structures in which beauty and harmony are considered are the successors to other structures into which these elements do not enter or in which their influence can only be traced in a rudimentary degree. The houses and buildings that line our streets to-day are the legitimate successors, or descendants if that be a better word, of the huts and "lean-to's" erected by primitive man in the primeval forest. In other words, the complex modern office buildings or dwellings with all their harmony and beauty, their ornamental and ornamented construction, their contributions to the mental health, power and pleasure of man, with whatsoever other qualities the imagination of the artistic critic may suggest, fulfill the same function in modern life, perform the same duty in modern society as the hut does for the rudest savage in the lowest stage of humanity.

Like all other things, architecture had a beginning; it could not have originated in any known edifice, because if the date or time of its erection is not known, the skill required in the construction of any structure that has survived from a distant past is sufficient to show that some earlier experience must have preceded it. Those, therefore, who search the sands of Egypt, the mounds of Assyria for the earliest architectural work of men are deluding themselves with a false idea. It may be possible in one or the other of these localities to find the earliest known historical monument, the earliest structure whose history can actually be traced, but not the earliest feeble attempts man made in providing himself with shelter. The origin of architecture must be sought in prehistoric, not in historic times, and the conditions there found must explain the meaning of the word, the nature of the art. Its earliest stage is not its most useful because it is not the most developed, but no definition can be accepted, no meaning adopted, which will limit the art to its latest form and make a natural product the plaything of the imagination of civilization.

Were all men now living in the happy state of culture the highest type of white race has attained, it would be quite hopeless to look for the beginnings of architecture or to find anything but a relatively advanced stage. Fortunately, many primitive forms of existence have survived intact to the present day in the savages who form a very considerable part of the population of the earth, and even if the customs and ideas which they exhibit are not actually survivals from a primeval age, they are not less primitive in conception and employment. The early history of all phases of life has received fresh and abundant illustration from researches conducted in the primitive life of the present, and though it can never be ascertained how close this reconstructed life approaches the reality, it throws much valuable light upon the beginnings of the human intellect. And as we look for the origin of manufactures and institutions in these early records so the origin of architecture must be sought in the same source.

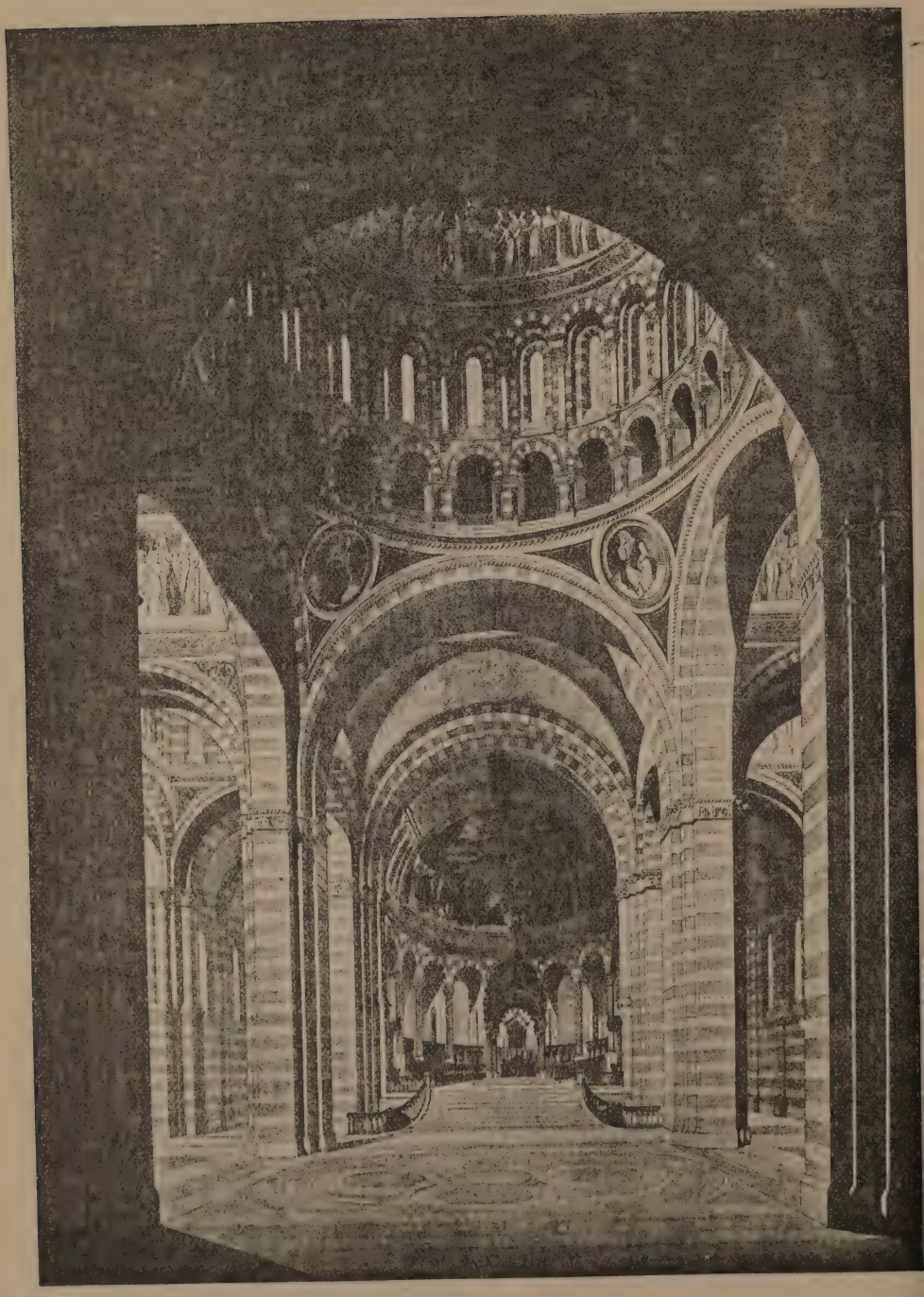
The first thing to be noted in primitive architecture is the total absence of the harmony, beauty and ornament which make up a large part of modern building. The struggles for existence with which primitive man had to contend were too severe for him to spend time on anything but actual necessities. If his shelter had any idea at all it was to be useful, and nothing more was expected. Indeed, how could it? With few mental powers, with an active but fearful imagination, with narrow mechanical means and appliances, he had to do the best he could. Sometimes he took a strip of bark from a tree, sometimes gathered a heap of leaves; the cave was palatial, the hut of rough logs or branches, tied at the

top by a twig and covered with leaves, a miracle not less amazing to his undeveloped mind than the dome of S. Sophia to the cultured Justinian. It is quite unnecessary to trace the successive steps in architectural evolution. Whatever it may be now it certainly began in expressing a use, in performing a service, as an actual necessity. Shelter of some kind was as needful to man as the gaining of food. It was natural to eat, it was equally natural to seek shelter, and if Nature did not herself provide it in the way of convenient caverns or accessible hollows in trees, it was necessary to secure it by artificial means. This was accomplished, not by the exercises in the elements of beauty and harmony, nor with a soulful longing for mental benefits, but by a forced adherence to the requirements of use and limitations of the materials at hand and the climate conditions. In other words, architecture originated in utility and the environment.

It did not long remain within these confines. Even in primitive society the influence of other ideas can be seen. As society progressed, as mankind spread out in fresh directions, as new conditions arose, the changed circumstances found their reflection in architecture. Architecture became in a measure, if not altogether, the product of the environment, grouping all external phenomena under this one head, acting through the mind of man. The evolution was not unconscious, man did not act as a blind agent in the hands of the evolutionary force; his intellect was needful in the making of any architectural work, but with the exception of this variable element the evolution of the art has not been less marked than the evolution of society, or of any form of culture. Culture and architecture have not always advanced simultaneously, but both have progressed towards one ideal; to an extent they are coördinate factors. The individual element which is feebly to be traced in primitive erections increases immensely in volume when we cross the border line between the primitive and the advanced, the prehistoric and the historic. The oldest architecture affords no comfort to the historian, for the most ancient art in the valley of the Nile is sometimes more advanced than that known to be later. There are ample prehistoric remains in Europe, but nothing that throws any light upon the beginnings of architecture.

Historic architecture shows in an appreciable manner the influence of the imagination. No human work could be expected to do otherwise, and with the increasing influence of this element architecture reaches a fresh stage in development. Yet it is slow to forget the associations of its birth. The new elements of beauty and ornament take a more and more increasing part, but it still expresses the factors which correspond to the natural environment in early times. Materials, politics, government, society, natural products of the locality, climate, and innumerable other elements affect the formation of an architectural style. It is not always possible to trace the influence of all of these in many buildings, but in the great styles of antiquity and the Middle Ages they are thoroughly active. They direct the evolution of architecture; they do not hinder it nor do they render the art of these epochs different from that of primitive times save in the matter of the imagination and constructive detail. Architecture expresses a human idea, a human thought, the state of society, the progress of culture. It may be beautiful and ornamented and suggest all manner of delightful ideas, but it is still the product of a natural evolution, it still answers the requirements of mankind, it is still a useful art and a necessary one.

The most intellectual occupation of mankind is the enjoyment of the products of his imagination. The more complex the products, the higher the culture required for their full absorption. Not every mind can appreciate an opera by Wagner nor a painting by Millet, yet it is in the creation of these works that civilization finds its fullest expression. Architecture, as the product of the imagination, as the idea of the artist, as the combination of beautiful parts, as ornamental and ornamented construction, has no more real reason for its existence than an amateur's water-color or a spring poet's



THE CHURCH OF THE SACRED HEART,
Montmatre, Paris.
The late M. Abbadie, Architect.



VESTIBULE OF LEHRTER BAHNHOF,

Berlin.

Kayser & v. Grossheim, Architects.

last poem. The architectural monument is too cumbersome to be stowed away in a museum, but no better fate is suitable for a building constructed on such principles. It is quite well enough to view architectural art through the delicate fancy and brilliant imagination of a Ruskin, the positive individuality and self-assertiveness of a Fergusson, or even in the light of more modern and less professional lexicographers, but these are pleasant exercises of the imagination, neither resting on truth on the one hand or on history on the other.

As a matter of fact, far from detracting from the interest or value of architecture, to view it as a result of a natural evolution instead of as the exclusive outpouring of the human imagination, it adds very greatly to it. Architectural beauty is not dependent upon looking at a building as a design, the individual thought of the artist. It detracts nothing from a structure to view it as the result of circumstances or of the environment. The Parthenon at Athens, the cathedral of Notre Dame at Paris, are not less wonderful and impressive because they express the thought of the times in which they were built, because they are the exponents of two different civilizations, because they are the products of circumstances not less than of human hands. These buildings would still be marvellous had they been the outcome of the imagination of two particular architects ; they are not less remarkable because they represent epochs and express universal ideas.

And as with great monuments so with small ones. It is a different spirit which produces the castle than that which produces the church, the civic edifice, the house, the château, the shop, the warehouse. Each grade of building, it might almost be said each class, is called into existence through special circumstances. Each must be judged by its own standards, its own origin, its own use, not by the imagined rank of another nor by an artificial standard of taste based on the popularity of some critic. The shop and the warehouse, the château and the dwelling express ideas, perform useful functions, as does the cathedral or the castle. It is not the same idea nor the same function, but there is no greater error than the confounding of them all under one head and scheme of definition.

It is well that our buildings should be harmonious, beautiful, ornamented, that they contribute to our mental health, power and pleasure, but it is a false limitation to use these terms in telling what architecture really is. It is equally erroneous to raise the distinction between building and architecture, as Mr. Ruskin and a host of lesser lights do. This fallacy is one of the most popular at the present day, and is found even in technical journals who define themselves as devoted to "architecture, building," etc. It is a most admirable way of relieving architects of the burden of unsatisfactory structures to represent them as the work of the builder, not of the architect. In modern usage there is a considerable difference between the two persons and the two occupations, but there should not be. This is largely owing to the fact that people do not know what architecture is, of what it consists, what it means. They know they live in houses, that the building of a newspaper edifice is the signal for at least one organ of public opinion to go into ectasies over the products of modern architecture, but this is all. Construction, the technical operations of wall building, occupy the public mind to the exclusion of almost all else. Writers and lecturers on architecture very largely confine their attention to the cataloguing of the structural elements of buildings, describing their æsthetic qualities as interpreted by the writer or speaker, and preparing chronological tables of buildings from an imaginary year I. to the present day.

Architecture is more than this. Each of these operations is distinctly valuable, but they are not always understood, certainly not always appreciated. They relate to superficialities and show the art by itself, apart from the thoughts and the times that made it. No art has followed man from his origin to his present state as closely as architecture. It is not only the most ancient but the most human of arts.


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With each successive step forward man made it advance likewise. It reflected his life and his thought, and in some epochs, as in the Middle Ages, it was the sole means through which he could give expression to his intellectual feelings. It became beautiful, harmonious, and ornamented through his deliberate choice; it was not so originally; these characterize a developed state of which the first form was exclusively useful.

The definitions of architecture reproduced in the beginning of this discussion have been brought forward to show the great diversity of opinion as to the nature of the art among leading critics and authorities. It is obviously impossible to examine them in detail in the narrow scope of a magazine article, nor can the varied conditions which form and affect architecture be reviewed with sufficient care to permit the formulation of a definition. M. Blanc found it necessary to devote a considerable portion of a large volume to explaining the nature of architecture, and it is obviously impossible to attempt a similar work in these few pages. All that can be done here is to briefly indicate what architecture is by showing its origin and the part it has played in human history, and it cannot be unsafe to maintain that the facts grouped under these heads must be trustworthy and infallible guides to the true explanation of the question at issue. It is quite a needless assumption of superiority to assume with Hittorf that the "art of building is found among the least civilized people, while architecture can only be the result of the highest civilization." Architecture, either as a fine art or as the product of constructive skill, has nothing to gain by being limited to the last new building, and, to tell the truth, even the definition that Mr. Fergusson prepared with such elaborate care fits perfectly many structures of primitive people, which are often highly ornamented, not with the ornament of civilization, but with rich and varied decoration that performs the same function in the savage canon of art that the most polished and refined ornament does in the hands of the most skillful artist of the present day.

It would doubtless be a source of unending delight to the esthete if an art of beautiful building could be devised in which nothing but the beautiful and magnificent would be admitted, but such a limitation of architecture would be thoroughly artificial and contrary to history. Human beings are not called men simply because they are good looking, but to do so would be no more senseless than to call all ornamental and ornamented buildings architecture, and those not possessed of these sacred characteristics something else. Such a division is not only unnatural and untruthful, but the recognition of two classes of structures, architecture and building, is detrimental to the art. It gives an exaggerated importance to the one, an unnecessary slight is put upon the other, and, which is much more important, the ornamental parts are frequently detached from the constructive, and instead of expressing the construction hide it as something that should not be visible. Architecture, therefore, comes to be looked upon as an artificial product, the result of the architect's imagination, a work of beauty, not as the outcome of the application of human resources to human needs and circumstances. The artificiality of modern life is eminently conducive to the furtherance of this unnecessary division, yet it should not be forgotten that this is the environment of modern architecture, and in meeting it as best it may it is performing a task identical to that it accomplished in expressing the less restricted environment in which the structures of past times were erected. The environment is not the securing of a pleasant location for a building, but the combination of every circumstance that affects or should affect its erection.

Viewed in this light architecture becomes a natural art with a wider, broader field than it is possible to have under the narrow definitions of the text books or the fanciful conceptions of the critics. It does not degrade the art to include all manner of structures within it, nor is it necessary that the historians from this standpoint should confine their researches to the investigation of unornamented structures, as



ENTRANCE, SHEFFIELD MUNICIPAL BUILDING,

Sheffield, Eng.

E. W. Montford, Architect.

in the past they have limited themselves to the beautiful. Neither will architecture lose any of its fascinations by being considered akin to nature. Much valuable light cannot fail to be thrown on its nature and history by viewing it from the natural standpoint, not, as heretofore, from that of the critic or the chronologicler. Nothing has ever yet been gained by the ignoring or the concealing of the truth, and architecture has nothing to fear by being placed on its natural and actual footing.

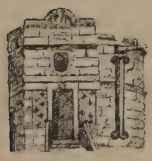
On this basis alone can any definition of architecture be formulated. Without, as has been said, undertaking this task, it may be well, in conclusion, to point out two conditions a satisfactory definition must fulfill: First, it must not ignore the history of the art and relate only to the structures of a limited time or erected by a small number of people; and, secondly, it must be general enough to be independent of the mental state of the inquirer, his personal feelings or tastes, his peculiar predilections or imaginings Architecture is a general art, affecting all men and characteristic of all ages. Any definition or explanation of it which ignores these facts fails of its purpose.

Barr Ferree.





WHAT IS ARCHITECTURE?—A LAYMAN'S VIEW.



JUDGE from Mr. Barr Ferree's scholarly paper that it is about as difficult to make a good definition of Architecture as it is to make a bright epigram: the man who attempts either plays considerable hazard with his reputation. One is quite prepared to find the conflict of definitions which he exhibits, also to learn that none of the authorities are authoritative, for one of the surprises that attend the dull awakening of a layman's curiosity to things architectural is to discover that the only definition of Architecture that seems to have any acceptance among the professional learned is—Architecture. Tradition is the oracle of the art. Now, a definition of this sort has obvious disadvantages for the uninitiated. It has too many of the good qualities of a good fence. The wall should not be too high to be scaled by the vagrant intelligence that seeks the fruit of the tree of Knowledge within. We, the Philistine Public, are repeatedly denounced as enemies of Architecture, as a sore trial sent, it is hoped, for a beneficent purpose to the spirit of the conscientious architect, because we prefer architecture that after the manner of good stocks pays six per cent, because our predilections are for "strong" architecture like the Westerner's taste for drink, because we delight in piebald work, exclamatory decoration, shams and Queen Anne. But when, like the Hebrews of old, we return occasionally from worshipping our false gods, and ask for instruction in the "law and the prophets," ask to be told what good architecture is, ask to be referred to even some initiatory standard of the fixed, the indubitable, the excellent in Architecture, some starting point as it were, like the Post-Office in New York, from which we can measure distances, it is very unsatisfactory, to say the least, to be informed that the only standard of Architecture is Architecture, that to make a beginning we must study the entire art, in its superficies at any rate, and that we who are so used to carrying nineteen-twentieths of our better knowledge in the shape of ready-made formulas and rules-of-thumb must in Architecture dispense entirely with those aids and begin to extract an elaborate architectural alphabet

for ourselves out of the work done by the ancient Greek and the Gothic builders and others, and out of (for us) recondite considerations about harmony of construction with environment and purpose. Than to do this, it is so much easier to return to the old flesh-pots, and afterwards see to it that the next architect whom we deal with pillors himself in his own work in return for considerably less than the professional commission.

There are, however, certain opinions about Architecture which we laymen* were gradually forming for ourselves through the aid of that instinct for better things with which even the commonest nature is endowed, and because of the persistence with which Art, like morality, insists upon recognition in life. We cannot thrust either from us. Complete exclusion means chaos, death. It is simply impossible to live by bread alone. Now I am sorry to see that many of these weak and faltering opinions are ruthlessly attacked by Mr. Barr Ferree, for I do not think it will be as well for us if they be driven quite away from our midst by the force of Authority. Though they be but gypsies from the great ideals of art, they bring into our dull lives suggestions and glimpses of the sunshine, the warmth, the joy and exuberance of an existence fuller than is ours. I purpose, therefore, to set down here some of such of these opinions as concern Architecture, and to beg Mr. Barr Ferree and others like him to do what they can to protect them for us.

In the first place we *do* believe that there is a difference really fundamental between what we call Building and what we call Architecture. We have come to think that Building, be it ever so scientific, or in harmony ever so complete with environment, purpose and so forth, still remains mere Building. For instance, an absolutely plain brick wall, perfectly constructed, admirably adapted to exclude trespassers and secure privacy does not contain the first element of Architecture. Between the apex of the pyramid of Cheops—surely the crown of the greatest piece of mere Building in the world—and the rudest finial in a Gothic pinnacle we consider there is a distance simply immeasurable. From the one only the torrid sunlight breaks, but from the other the light of the inspiration that came to some human heart mystically, as all our visions do.

Besides this, we have come to acknowledge, and some few of us really to perceive, that among the Fine Arts there is a close kinship—a consanguinity, if the word will pass. As a consequent, it is difficult for us to accept with full satisfaction any definition of Architecture that refers us solely to the mechanical, technical, special or singular attributes of the art. The real value of any one art lies in the revelation which it holds of something wider than itself, lies in the part which it has in the "large lordship of the light;" and a definition that tells us that Architecture is the art of building in conformity with purpose and environment, or anything of the kind, is a denial of this unity among the arts. Right or wrong, we feel that a definition of Architecture to be quite acceptable must recognize the kinship of that art with Sculpture, Painting, Poetry, Music, and if it should recognize technical attributes it must do so in a secondary and incidental way only.

When we look at a noble picture we may perceive not only the purely material elements of which it is composed such as the pigments, canvas, etc., and, if our powers of observation be sufficiently well trained, the technic skill of the artist, displayed it may be in truth of drawing, accuracy of perspective, delicacy or brilliancy of coloring, exactitude or finesse of detail, but also an *immaterial element* which endues the work with vitality and meaning for us and affects our feelings. In a picture gallery we may buzz and exclaim to the ineffable disgust of Mr. Ruskin before a piece of realistically-painted lace-work, but we certainly do not view it in quite the same spirit that we do a picture, such as, let us say, Millais' "Huguenots." Here we recognize the element of feeling

* It may be said that laymen can have no opinions of any real value. Some persons will tell us that we should humbly listen to and accept what Authority teaches us. But where are we to find Authority? There are authorities; but they war with one another.



London, Eng.

SOUTH KENSINGTON MUSEUM,
(Selected Design.)

Aston Webb, Architect.

in the work. The secret of the picture lies beyond what the eye sees, in what the heart feels. As Mr. Hamerton said of Turner's Venetian pictures: "The question is not whether they are close imitations of nature, but whether they have the art-power of conveying a profound impression." A photograph, even one highly colored, is not Art for us; not because of the absence of anything technical, but because it lacks the human element, the suffusion of feeling. Despite all that is said to the contrary, it is not fellowship with Nature that we seek in Art, but fellowship with Man. Parenthetically it may be worth while to point out here that these considerations, if they be correct, reveal the fatal deficiency of realism as it is commonly understood; for Art is more than faithful representation, it is revelation. The artist must be more than the showman; rather he must be like the chorus in Greek tragedy—a part of the play subtly heightening the action.

But to return. That immaterial element which we recognized in a noble painting as its peculiar art-quality, the secret of its power of profoundly impressing us, we recognize quite as readily in the indubitably great works of Sculpture, Poetry, Music, Architecture. From all, the impression we receive is fundamentally identical. The feelings we receive from the choir of Beauvais, the stir of emotion produced by the inaudible

> "Tones of minstrelsy
> Which linger yet about lone Gothic arches"

are the same that we receive from Poetry, from, for example, the following of Wordsworth's:

> "But from the arms of silence—list! O list!
> The music bursteth into second life,
> The notes luxuriate, every stone is kissed
> By sound or ghost of sound, in mazy strife,
> Heart-thrilling strains that cast before the eye
> Of the devout, a veil of ecstacy"—

or from (to turn our attention to Music) the "Swan" song in "Lohengrin." The spell which each possesses is the same; each alike is an expression of the minstrelsy of the human heart. The soul of Art is feeling. Architecture has exactly the same source as Sculpture, Painting, Poetry and Music and has precisely the same message for us.

Viewing the matter then in this light it will readily be seen how difficult it is for us to regard Architecture as *primarily* construction in harmony with environment and purpose, or as good building, or as decoration, or as ornamentation, or as "the art of designing sculpture for a particular place." It may be any or all of these, so long as it is *Building with feeling in it.*

There! we have run into a definition, and, as Mrs. Poynter said, "when your head is in a bog your feet may as well follow," so let us accept that definition and do the best we can with it. Of course it is not necessary to say that the word feeling as used here is not co-extensive with the psychological province of feeling. Not all our intellectual, moral and religious sentiments can be expressed in Art. The particular concern of Art is the æsthetic feelings. Moreover the word "feeling" itself may be objected to as implicitly denying the intellectual element of Art. This element, however, is not necessarily excluded. There is no sharp division between knowing and feeling; they are the opposite ends of one line. The terms are not antithetic or exclusive, but in a given mental state denote the predominance of a certain mental condition. Indeed, Wundt speaks of all the sentiments, Intellectual, Æsthetic, Religious, Moral, as Intellectual Feelings. No one who keenly appreciates Art or has striven himself for artistic expression will doubt for a moment that an exalted condition of the emotions is the prerequisite of Art. The centre of the inspiration with which Art begins is in feeling, not in cognition. Plato recognized this fact when he said: "But he who having no touch of the Muse's madness in his soul comes to the door and thinks that he will get into the temple by the help of art—he, I say, and his poetry are not admitted; the sane man is nowhere at all when he enters into rivalry with the madman." Indeed, the positive, purposeful, intellectual element in the most inspired works is probably less than is ordinarily supposed. Nay, more, the

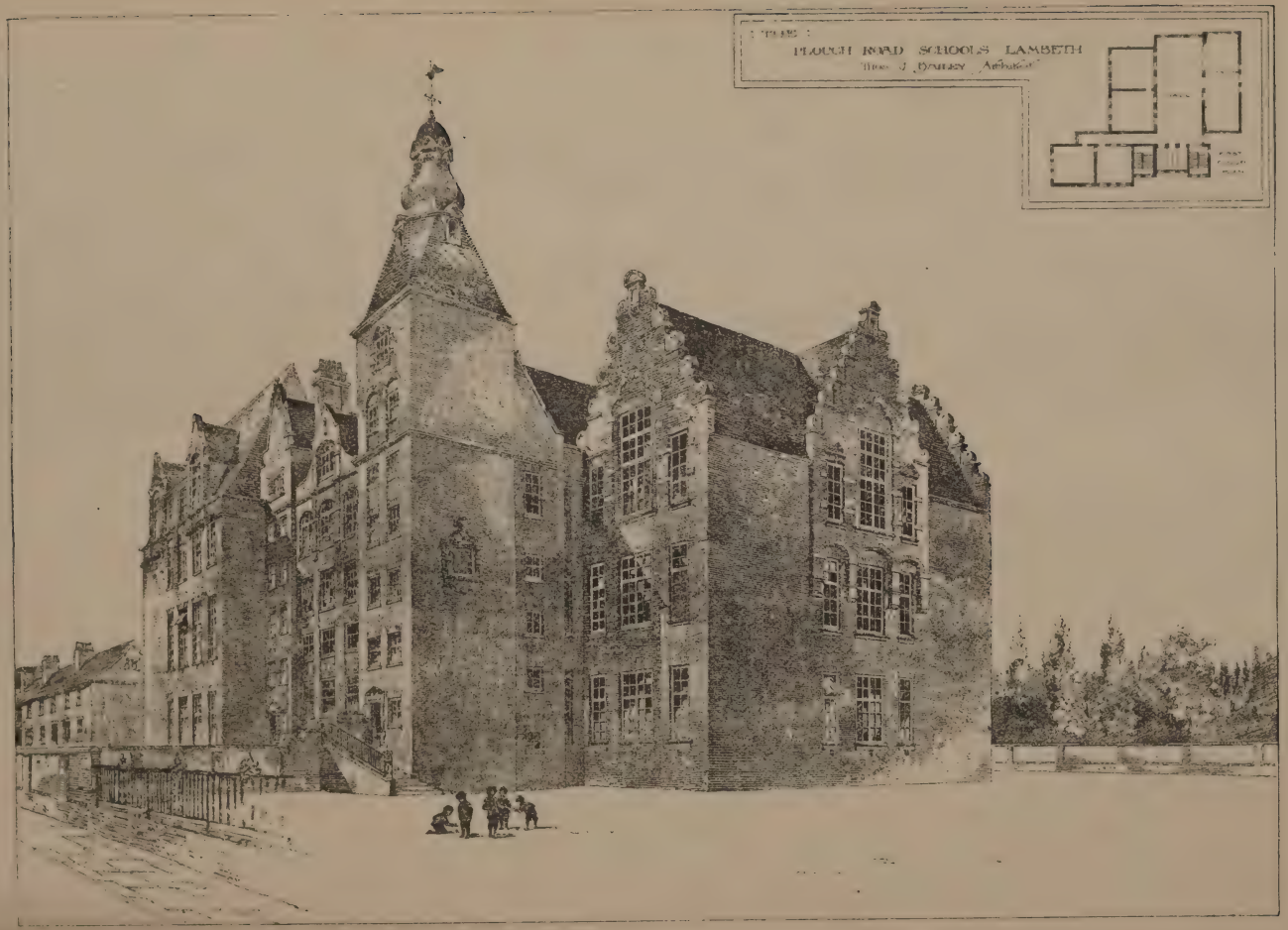
gift "inspiration," as commonly understood, denies, precludes the pause and search which mark a mental operation predominantly intellectual. Goethe said of one of his works that it contained more than he himself knew. Socrates found the Athenian poets of his day poor expositors of their own writings, and no doubt Shakespeare had nothing like the intellectual appreciation of his most inspired sayings nor the insight into the meaning of them that a modern commentator has. Every great artist has builded better than he knew. He has worked, if one may say so, unconsciously.

There is in contemporary architectural effort so little of the real art-impulse that not a few objections will probably be made to the predominant position given in the foregoing to feeling. The architect has become so much a copyist, a dealer in second-hand material, that the sources of the true creative-impulse is dried up in him. Feeling! He scarcely knows what it is in the production of his work. His designs lack the quality of inevitableness, which is one of the characteristics of true art. Real feeling, truly expressed, demands the form of expression suitable for itself. The great artist allows the inspiration to suggest the form. The architect of to-day, however, apparently changes his styles as readily as the modiste does her "fashions." On not a few offices this legend would be appropriate—"Architecture in every style." It is not to be wondered at then if we find architects inclined to exalt the circumstances of "style," choice of material, concord of structure with purpose, and other matters concerning the form or method of expression into the first place as the essential element of their art. But the art-feeling—the source, the inspiration of art—should not be confounded with the art-expression. Take, for instance, the following verses of Shakespeare's:

"Five hundred poor I have in yearly pay
Who twice a day their withered hands hold up
Towards Heaven to pardon blood; and I have built
Two chantries, where the sad and solemn priests
Sing still for Richard's soul."

There are two sources of pleasure here for the sympathetic reader—(1) the feeling of the poet revealed in the verses, and (2) the musical and perfect expression of that feeling. As a rule the reader rarely separates these elements in his appreciation. Technique, skill, the modes and forms of expression are to the art-feeling but a vehicle, a means; and their excellences are of value to Art, not in themselves, but only in so far as they insure a perfect expression of the artist's feeling. Sir Joshua Reynolds says: "The great end of the art (painting) is to strike the imagination. The painter is, therefore, to make no ostentation of the means by which this is done; the spectator is only to feel the result in his bosom." I take this to mean inferentially that our admiration of, say, fine coloring or accurate drawing in a picture is not admiration of art in the real sense, because fine coloring and accurate drawing are valuable to art, not for themselves, but because the artist can express his feelings more perfectly by their aid than without it. Similarly in Architecture, when we concern ourselves about the means, the vehicle of the architect's expression, we are stopping short of the real matter.

It may be urged, however, that in judging of the merit of a particular piece of architectural work we must consider not only whether it is an expression of feeling of a high order, but whether it is an expression of feeling in *harmonious relation* with the material used, the form adopted and the purposes of the building. True, but are these matters of relation matters of art? The design of the Parthenon would no doubt be very unsuitable for a modern office building; but if submitted by an architect for that purpose could we correctly say it is *bad architecture* absolutely? It would be *unsuitable*, certainly. No matter where it might be placed we who, to-day, have only at best a very dim appreciation of the purposes of the Parthenon would recognize that the building is an expression of art-feeling of the highest kind and in the highest degree. One of Chopin's Nocturnes played for a party to dance to


PLOUGH ROAD SCHOOLS LAMBETH

would be very unsuitable, but would it be bad music, as music? A statue out of proportion to the niche in which it is intended to stand would also be unsuitable, but would it be poor sculpture? Art exists out of relationship to considerations of utility, purpose, etc. But—and this is the necessity for the artist's considering these matters—the feeling produced in us by a given art-production *may be contradicted*, as it were, by other mental states in which it is not in harmony, and this contradiction, at war with the satisfaction otherwise given, minimizes the pleasure we received. The incongruity which we would feel in viewing the Parthenon as an office building would lessen the sum total of the pleasure the structure would give us. Many writers perceiving the pleasure experienced in recognizing the harmony of a building with its purpose exalt this concord into an element of art. There is no finer concord between structure and purpose than we see in a steamship, but is the concord there fine art; and if it is not fine art there can it be such when exhibited in a building? From a work of art we may receive more pleasures than those which are purely æsthetical.

With these considerations in mind, then, it may be wise for us to modify and extend our definition of Architecture thus: Architecture is Building expressing æsthetic feeling. To produce the highest effect this feeling must harmonize with the form and the material in which it is expressed, and with the purposes to which these (form and material) are put.

But, the question may be asked: Even if we accept as a definition of Architecture, Building with feeling in it, how much more serviceable will it be to you laymen than any other definition? Building with feeling in it may be Architecture, but not necessarily good architecture. Much poor poetry is pitably charged with feeling. It is quite as important to know what kind of feeling must be present in Building to make of it good and worthy Architecture, as it is to know that the presence of feeling is required to make it Architecture at all. This is undoubtedly true, and our defense is a *tu quoque:* our definition is not more defective than other definitions. If we say Architecture is the "art of ornamental and ornamented construction," or the art of building beautiful buildings, or anything of the kind, we leave quite as much unexplained and undefined as when we say Architecture is Building with feeling in it, or building expressive of feeling. There is, however, we believe, this difference: our definition emphasizes the indispensable element of Art. The definition we give takes a broader and a deeper view of the art than when we say it is "ornamented and ornamental construction," or "the designing of sculpture for a particular place and the placing it there." A deeper view, for behind the ornamental construction and the designing and placing of sculpture there must be feeling if the result is to be anything more valuable than a mechanical operation. A broader view, for our definition keeps Architecture in closer touch than the others do with the human element in it and makes Architecture a part of History in the best sense—the revelation of the spirit of mankind. The Classic spirit is revealed in Classic architecture—the architecture of reserve, repose,— and the Mediæval spirit in Mediæval architecture,— the architecture of exaltation and exuberance. In the former there is no fire. The inspiration is of the kind that tarries, that reveals itself logically, that consists primarily in the manifestation of a direction rather than an end. The invitation of Socrates to Phædrus, "Come, let us go to the Ilissus and sit down at some quiet spot," is the perpetual invitation of Greek art to mankind. How different from Mediæval art where the exaltation is so manifest, where the inspiration seems to have been a light breaking forth on a dark and solitary way. The Classic has become the architecture of grammar, the Mediæval the architecture of freedom, and so long as our architects are copyers, transcribers of "styles"—other people's feelings—whenever the times become logical, formal, we may expect contemporary architecture to revert to the classical types; whenever the times are restless, roman-

tic, free, we may look for a reversion towards mediæval types. In our own times we have seen proof of the accuracy of this statement. The "English Renaissance," so called, with the pre-Raphaelite movement, was a revolt for deeper feeling against the conventional, and in a sense a cry for greater freedom. It was attended, as we all know, by a revival of Mediæval architecture: it lingers with us to-day in the prevailing admiration for the picturesque in architecture.

And, finally, our definition reveals to us the real direction in which we in this country must look for good architecture. An improvement in our condition will not come from a turning to new copy-books, a following of new fads, but from a heightening and a refining of national feeling. As a people we are to-day too exclusively appreciative of mere vigor—too ready to accept extravagance, coarseness, size, show—the form which mere vigor is so prone to take. The public sentiment needs refinement, the subtle heightening of delicacy and charm.

There are strong reasons, however, why Architecture should flourish with us. In the Old World the characteristic sentiment of the age is a contemplative melancholy—

> "Violent sorrow seems
> A modern ecstacy"—

a mental condition better suited to expression in Music, Painting, Poetry, than in Architecture or in Sculpture which are adapted to voice a robuster feeling produced by a full physical existence and a rapid constant touch with the practical, concrete side of life. This robuster feeling is ours. But before it can produce fine art, reach a lofty expression, it needs, we fear, considerable chastening. However, in many directions and along many ways refining influences are at work. There is reason for much hope. While we cannot, indeed, build a city as Amphion did Thebes, with music to the enchanted sense, the day may come when we shall set each stone in place to the music of high thoughts and noble purposes. All who are interested in Architecture should pray and work, particularly work, for the dawning of that day, so that those coming after may say of the humblest building in the land:

> "They dreamed not of a perishable home
> Who thus could build."

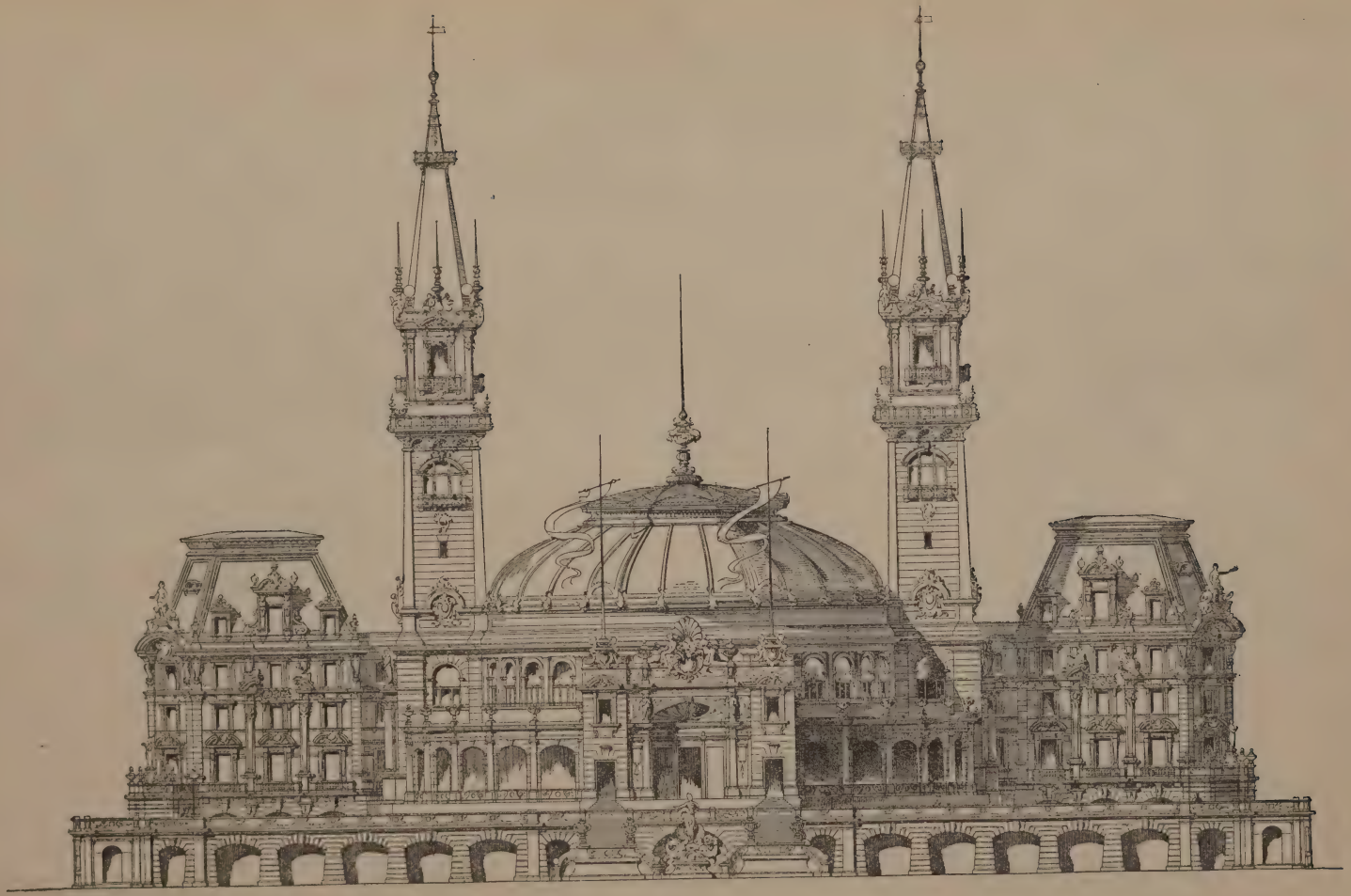
Harry W. Desmond.





ART AND LIFE.

SPECIALISTS have inherited such a large part of the kingdom of current knowledge, that one, who would act upon the supposition that their dominion is restricted, takes his head into his hands. If a man who does not pretend to be an expert hazard a suggestion on, say, political economy, hinting that the masters of that science have applied its presuppositions and principles somewhat too rigorously to the varied phenomena of life, he is forthwith pulled up sharp by some aggressive and astonished follower of Ricardo. "What do you know about political economy?" he is scornfully asked. "Have you read every book on the subject from Adam Smith down? Why, you are ignorant enough palpably to confuse the cost of production with the price of labor. An edifying authority you are! Pray take yourself off and speak whereof you know?" We have frequently heard language of this sort leveled at the slippery head of some venturesome speculator; and perhaps it is very often justified by the poor man's crying ignorance of the specialist's primer. But even so there is something more to be said. "Is it necessary," one might ask, "for every specialist to be a schoolmaster? Must he scold and rate men as old as himself because they have placed mistaken feet within his fences?" Hence our sympathies, if nothing else, would lead us to speak out what could be said in favor of the vanquished presumer. By seeking we might find that if he was measurably wrong, he was also measurably right. He was doubtless very careless and very ignorant to confuse such an acid as the cost of production with such an alkali as the price of labor; but then the economist was very blind and quite inhuman to dress the major part of the Hercules of human nature with the stiff knee-breeches of his science. Having gone thus far, we might take further heart and make bold to dogmatize a bit; we might apply to the occasion the time-honored rule that the whole is something more than a sum of its parts, and we might add that this something more has a claim to representation greater, far greater than the claim of any of the component elements. Do they not live only through its embraces? We might say (this with a lower voice) that there is a definite place for men like Lord Brougham who, as it is said, wrote about one thing as a man who knew a great many other things, that such a one may be useful as a moderator of specialists, just as each specialist is useful in his own little department, and that, although he must tread gingerly in the ticklish and bewildering labyrinths of

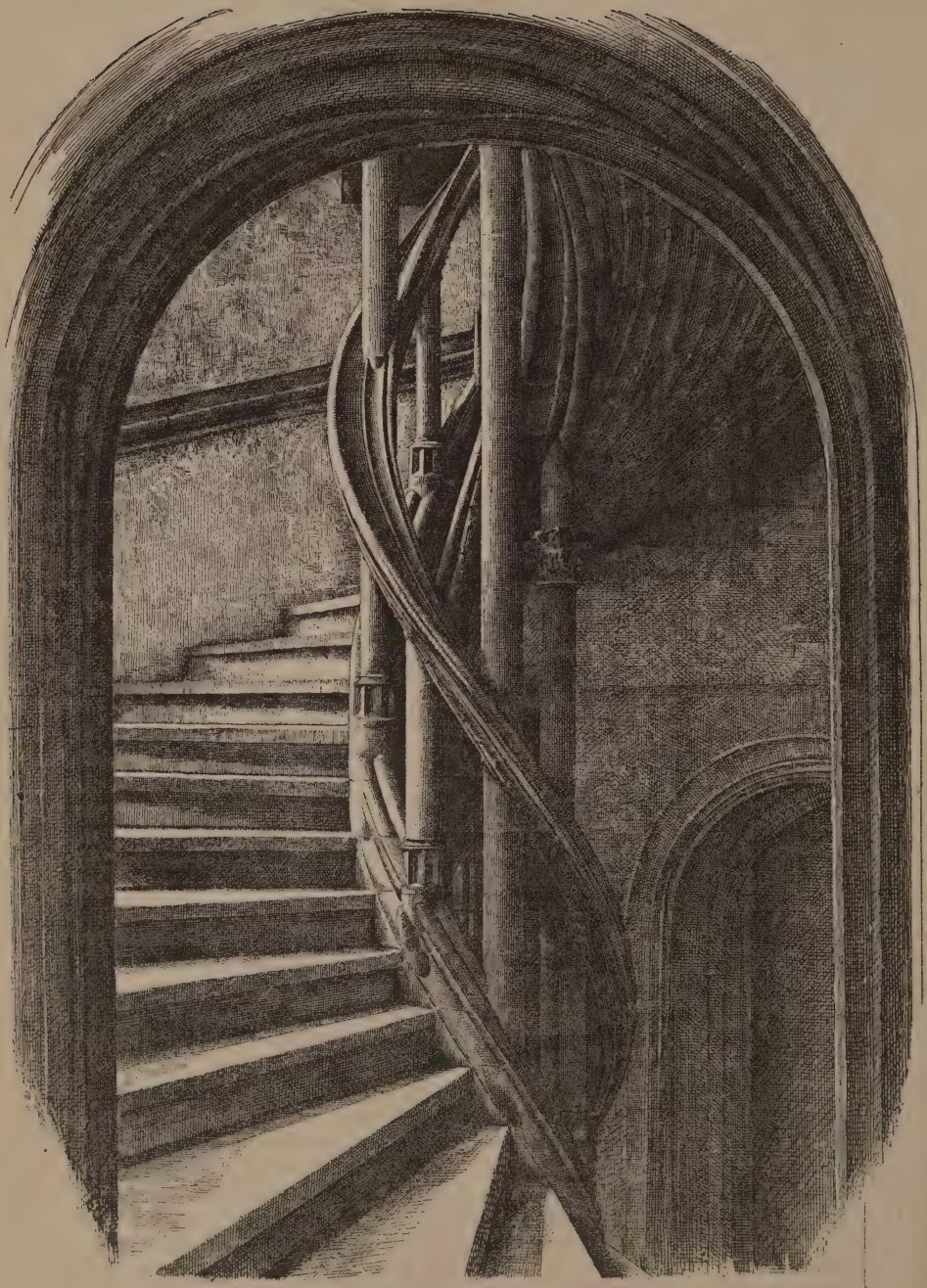


Zurich, Switzerland. DESIGN FOR THEATRE AND TONHALLE, Chiodera & Tschuldy, Architects.

private property, he may strut boldly on the broad common lands of the earth.

It is on the supposition that one who is neither artist nor learned in the arts, may yet have something to say on art matters that is of possible value to layman like himself, that the present writer ventures a few remarks concerning the effect of art on life. These remarks, it is scarcely necessary to say, are not addressed to artists or connoisseurs. Their own experience will tell them what the effects of art are on life more vividly, more truthfully and more completely than any words of anybody. But there are in this country a great many intelligent and well-meaning men to whom art is nothing more than either a plaything or a fad. Such people, indeed, form the bulk of society. They toil and toil; they build their houses; they rear their families; they make their associations; they find their places, hard or soft as the place may be. In all these necessary occupations, art helps them never a bit. A picture gallery becomes the place to waste an hour in; a book of poetry the admirable but incomprehensible and alien outgiving of a popular name. The more dogmatic and robust of them, seeing that the pursuit of art is frequently a fashionable excuse for delicate drones to make light of commanding responsibilities declare roundly that it is nothing more than the refuge of the inefficient; but the majority of those who do not come within its influence are too much the creatures of the hour not vaguely to grant to art a certain but utterly undefined place in life. In passing they cast a glance at its treasures, raise their hands in tribute, and then trot off to the familiar round of ordinary occupations. We must have a very much more advanced stage of civilization before the mass of these workers can share with any degree of intimacy that love of the ordered and living fairness of the world which at bottom is the life of art. But pending this problematical higher stage of civilization, there are many money-makers by necessity who yet would wish to be something more than money-makers. Either early or late these people might dimly ask themselves what they would gain by the pursuit of art and what they would lose by its neglect. It is doubtless very seldom that they put this question to themselves consciously, and answer it with any sense of its importance. The process is generally reversed. People seek for what art has to give them in response to an inner demand; and it is only later when they have learned to live somewhat amid its splendor that a faint suggestion of its peculiar message is revealed to them.

But it will be sufficient for my purpose to imagine the case of a man, who put these questions to himself—a man who never wore clothes, but who so far might have worn them that his name is Smith. This man is obliged to occupy a good many hours every day in earning his living—in selling tin, perhaps; but he does not consider that his debts are paid when his bills are receipted, or that he has nothing to his credit when his debtors have settled up. Rather does he believe that a man is something more than a corporation, and that his immortality depends on something more than financial solvency. Circumstances, however, demand that he must always sell tin, and that the other good things in life cannot displace this occupation, but must be reconciled to it. Furthermore, let me suppose that friend Smith has eyes that can see, ears that can hear, and something impalpable inside of his head. At the same time he is without one of those unfortunate lopsided dispositions that might severely circumscribe his activities. His nature is eager, willing, adaptable, discerning, wholesome; his inclinations are neither the engineer of his actions, nor yet simply their motive power, but rather more the vehicle that will bear him wheresoever his right mind shall direct. This right mind will tell him, that apart from somewhat trying concessions he must make to the necessity of selling tin, he must come into most varied and measured correspondence with all that is best in life—giving art, friends, good works each its proper place, determined partly by his character, partly by his circumstances, partly by their



STAIRCASE, NOTRE DAME, STRASBOURG.



Designed by Edison Electric Light Co.

claims. In order that this duty may be efficiently done, he will, among other questions, ask himself what is the sphere of art—a question that he would answer largely by a few further queries as to its effects and message. It is these queries that I now wish piously to make attempt at answering.

"Friend Smith," I would say, "happy in a virgin nature, I can, perhaps, best meet your needs by bringing to your attention the effect which the pursuit of art has had upon one who has devoted his life thereto. 'It is the privilege of art,' says John Addington Symonds, 'to quicken feeling and to lead our soul through all the labyrinths of life as in a vision. Sculpture and painting, in particular, teach us to see what is noteworthy in the form of man, and in the face of nature. Not many weeks ago I walked in the light of a mellow July sunset along the Serpentine, watching the crowd of men and boys who bathe there. I recognized, how impossible it would be to reproduce in its complexity of interest and beauty what I saw before me—the space, the atmosphere, the massive trees, the luminosity of the sky above, the sheeny, troubled surface of the pond, and above all the innumerable groups and changeful attitudes of the naked men in every posture. And yet, at the same time, it was borne in upon my mind that only through the service of art, through the labor of Greek sculptors and the service of modern painters, was I at the proper point for discerning what this common scene contained of beauty and interest. No painting could place in right relation to the whole, and to the parts the multiplicity of marvels it offered to my

vision. No sculpture could fix and perpetuate the grace inseparable from the movement in those men and lads. But except for years of training under this influence, should I have had the eyes to see and the spirit to admire what was revealed to me?'

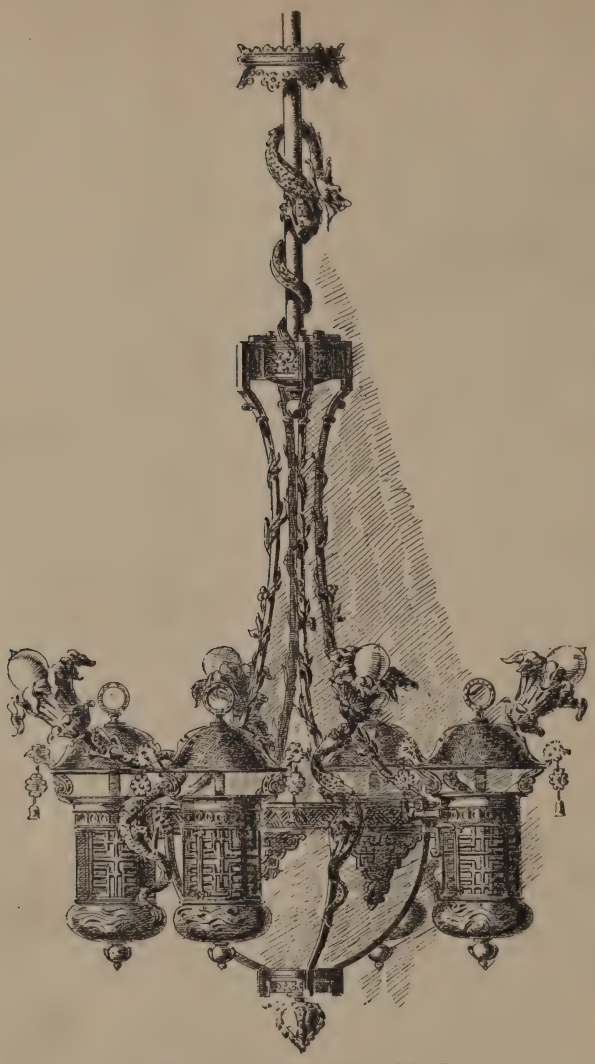
"What art has done for the student, it can in a measure do for all of us —'it can lead our soul through the labyrinth of life as in a vision.' How do you spend your time, friend Smith? Recollect for a minute all that you see and hear in the round of an average day, the inevitable sensuous accompaniments of rising, dressing, eating, business, going up and down town, social diversions, and a trip to the country. It all seems very monotonous, does it not? One day is very much like most other days; everything is a confused blurr. Perhaps here and there, now and then, some domineering impression will stand out —a pretty face, an odd suit of clothes, an imposing building newly seen, or some horrid clatter into which you have been accidentally thrown; they are not very numerous, but such as they are they constitute the sensuous events of the day. If you are pressed for conversation, you might talk about them in the evening; but more frequently their effect is too ephemeral for any verbal tribute. They are buried in a hazy mass of sensation, and are brave enough to stick out, only because of some adventitious circumstance. Instead of traveling through life as in a vision, you make the journey along a stupid canal that is lined with the commonplace.

"The point of all this is, friend Smith, that you are in danger of becoming deaf and blind. Your life is crowded with sensation; the whole earth is displayed before you—the earth that is teeming with faces, forms, sounds, color, life, motion, contrast, discord and harmony. You are groping your way through this manifold as if there was nothing to find until you came to the final jumping off place, which, for aught you know, may be night. Now art, if it be properly learnt, will enrich and refine this poor coarse, sensuous life of yours. Under its influence you will gain an eager, searching, selective, correct eyesight, and a hearing that will be sensitive to the elusive concordance of sound. For the whole world will become expressive and suggestive, instead of being merely arid and blank. Sensations will begin to have meaning. They will not glance off as a bullet does on a hard and slanting surface, but will find a place in your sensorium, each of them being filled with a thousand little attractions and repulsions. It will rest with you to discover what these attractions and repulsions are—to sort the sensations, discarding for the sake of economy much that you would like to keep, and giving each a proper, although it may be by no means a permanent compartment. For the life of art must be a life of constant growth, and as years go on, and the taste changes, things will seem somewhat different. But the end will remain always the same—to offer a warm and appreciative hospitality to the diverse wonders of the world.

"Thus art, friend Smith, should make you not simply a virtuoso, but a detective medium—eliciting from the manifold of life what aspects of beauty, color, music and distinction things contain. For all of us art has but one permanent abiding place—in our own minds. That we find it in a picture-gallery, in a concert-hall, or on the pages of a book are but accidents. They are the kind of accidents which society should make inevitable in the lives of its units; but taken alone they are meaningless. It is the inner and pervading presence of the spirit of art, the love of living beauty, that is necessary. In order that this spirit may be acquired, and find the expression needed for its growth, you must, of course, make a careful and intelligent study of all the painting, sculpture, architecture, music and literature within your reach. You must learn how far adequate is the revelation afforded by each one of these arts, what their relations are one to another, and what the advantages and limitations of the vehicle that each one of them uses. You must at the same time learn something of the historical development of art in general, and of each of the separate arts—the many



EXTERIOR STAIRCASE AT VITERBO, ITALY.



Designed by Edison Electric Light Co.

forms and the varying importance they have assumed in different nations at different times. And you must bring this schooling and knowledge to bear in estimating the worth of current art products—wherein consists their peculiar flavor, and what elements of permanence and transience they contain. Concurrent with your ability to acquire, and to use this knowledge, will proceed the education of your sensorium already mentioned.

"And here it is time to make a distinction. I have already indicated that underlying all love of art there must be hospitality of sense; so underlying all interpretation of art there must be justice of sense. After you have begun to see, friend Smith, you must make sure that you are seeing clearly and straight. Danger exists in the over-education of any one of the faculties. No man can afford to surrender himself too completely to a stream of impressions. The detective medium must be sensitive; but it must also be active. It must receive; it must reject; it must modify; it must combine. The twinkling impression must first of all be seized—but only to

show cause why it should not be summarily dropped into the catalogue of the misplaced. If it passes successfully through this test, the work of appreciation and comparison begins. If it be a human face, we look to the expression of the whole; the excellence of each of the features, the extent to which they are friends or enemies, the way in which the lip curls, the eye flashes or the nose predominates. If it be a building we seek the conditions under which the architect labored, the opportunities which were offered to him, the idea which he sought to express, the degree of skill, consistency and taste with which the idea has been developed, and the amount of originality and vitality the conception and the composition betrays. The phrase 'justice of sense' covers the whole of this process. It is not a matter of mere perception, because perception always tends to be passive; it is not a matter of intellect alone, because a multitude of impressions empower the free play of the mind; it is the union of the two in one composite act. What this justice of sense has to fear is the great Idols of the Cave and the Market Place. It should allow no advocate to confuse; and no prepossession to bias. The true lover of art can wear no livery; but, taking the advice of Goethe, must live resolutely in the whole.

"Open your senses, friend Smith; discipline and broaden your intellect; quicken, chasten and subdue your feeling. There is an element in art, in nature and in life that cannot be detected by the senses alone, although the senses are necessary; that cannot be discerned by the mind alone, although the mind is indispensable; feeling, emotion enters into the interpretation, but does not make it. That this element may be elicited all the faculties of a man must meet in the unity of spirit; and when this unity is attained, the surest, yet the most delicate communion on earth is established. The slightest loss of balance, or superabundance of part mars and may unmake the communion; but it is only thus that men speak to one another with complete truth. All other means of communication are faulty. Sense can speak to sense only through personal contact, and the message conveyed is brutish; feeling can speak to feeling through symbols, but the message always intends to become either maudlin or vacuous; reason can speak to reason through symbols, but the message lacks warmth, vitality and power; spirit, which is all of these things and something more, can speak to spirit through symbols; and these symbols will convey a meaning that is clearly defined and yet infinitely suggestive—a message that will stimulate our feelings, satisfy our reason, convince and occupy our nature. In this way, friend Smith, art will not only enrich, refine and clarify your life; it will also ennoble and dignify your life.

"All that I have said, friend Smith, comes to this. Art is an indispensable element in the matured and perfect life; but in the words of a recent writer, it must not be made a fetich; it must be kept simply as a contribution. Like all things that are possessed of a unique and captivating nature, some men make too much of it; and thereby lose not only the best of life, which is a clean, organic wholeness, but the best of art as well. If you mistake it to be the patented possession of a cultured few, who thereby are alienated from the herd, it will make you exacting, finical, and even querulous. It will interpose a barrier between you and the seamy and sordid side of men and things. No man is too good for life; no man is above rational and proper activity. If art is not made a distracting, disabling, and at bottom a disheartening thing, it should by sweetening, enlightening, and to a certain extent even steadying our natures, make us the more adequate to those necessary activities. Therefore, I say, friend Smith, bring art into your life, that you may have a high and temperate soul."

"'Tis human fortune's happiest height to be
A spirit, melodious, lucid, poised and whole."

Herbert D. Croly.



LOBE.—AMIENS CATHEDRAL.

SKELETON CONSTRUCTION.

THE NEW METHOD OF CONSTRUCTING HIGH BUILDINGS.

WITHIN the past three or four years a new method of constructing very high buildings in New York has come into vogue. It is known as the skeleton construction, and consists in the use of iron or steel columns, with thin curtain walls between, in place of solid thick brick walls. The curtain walls themselves are carried on wrought iron or rolled steel girders spanning the distance between the columns, which is usually about 15 feet. In addition, the weight of floors is also transmitted to the columns, so that the latter support the entire building and contents. The columns are encased with brick-work, and when the building is plastered and finished on the inside there is no visable evidence of novelty.

The advantage of using the composite construction is the room space gained in the difference between a thick wall and a thin one. In the ordinary method of building, the higher a brick wall the thicker it must be in its lower parts. The New York building law very properly requires a wall to be built on the principle of a mast of a ship, the off-sets at various stories in the thickness of a wall in heights securing what is in effect a taper from the bottom to the top. The lower story of a building is the most valuable for rental, yet it is in this story, of all the stories above the sidewalk, that the greatest area of a valuable lot must, under the old method, be wholly surrendered to enormously thick brick walls. Every inch gained in the width or length of the inside measurements of a costly building increases the availability of the structure, and therefore swells the income derived therefrom by the owner; but when this gain of space is feet instead of inches, in width and length as well, the reasons become obvious why the new method of construction, which takes up less than one-half of the area of plain brick walls, should immediately spring into public favor after an example or two had proved its strength, safety and probable durability. The great value of favorably located lots, fairly forces owners to build skywards in order to get an adequate return on their investment. The London and Lancashire Insurance Company not long ago erected an office building on a lot which the company purchased on Pine street, New York City, immediately adjoining the U. S. Sub-Treasury property. The lot measures 24.2 front by 74.4 deep, and the price paid for the same was $195,000. The lot is one foot

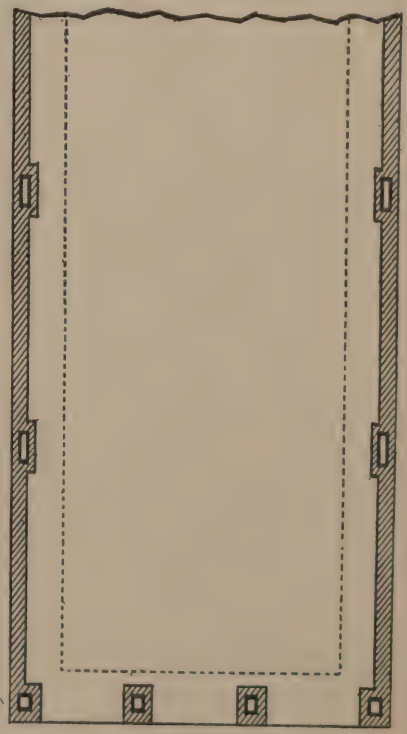
wider on the rear than it is on the front, and one side is one inch deeper than the other side, so that the actual area of the lot is about 1,834 feet, and makes the price figure about $106 per superficial foot. The old building was torn down, and a new building erected of the skeleton construction. The curtain walls between the vertical columns are 12 inches thick, the same thickness in the first story as in the tenth story. Lots on Wall street and lower Broadway are of greater proportionate value than that of the Lancashire Company, which has an area of only three-quarters of the unit of a city lot.

The era of high buildings began with the year 1870. Let any person who has long been a resident of New York draw on his memory and he will find that all high buildings which in the popular and received interpretation of that term are now so styled, are of a date subsequent to the erection of the Post Office building. Prior to that date there was a very limited number of fire-proof buildings within the limits of the United States. Those which did exist were chiefly Government buildings. Only ten years before that the first "I" beams were rolled in this country. Peter Cooper's Trenton, N. J. Mills, and the Phœnix Iron Co., of Pennsylvania, began to manufacture them about the same time. In the early fire-proof buildings—the Cooper Union, Harper's publishing building and the New York Historical Library building—the iron floor beams are of a shape



very similar to what are commonly known as deck beams, with brick arches between. It was seen that if buildings were to be built higher than the conventional five or six story limit, to a height beyond the ability of firemen to successfully cope with a fire, such buildings must be constructed with something better for the floors, partitions, stairs and roofs than a mass of wooden beams, studs, plank, furring and lathing, and more scientifically arranged than a pile of kindling wood for burning, each piece being separated and exposed to the air. With the incoming of high buildings came a safer construction. Eight or ten stories in height—the height always being considered as above the sidewalk, and not including the stories below that level nor including towers nor stories above the level of the main roof—seemed to be the limit for a long time that owners could see their interest in going to. Suddenly a very much higher jump has been made, and it is a matter of general knowledge that Mr. Astor's new hotel, now erecting at 59th street and 5th avenue, will be seventeen stories in height. It is quite as generally known that the proprietors of the *Sun* are talking of putting up a new building, to be some twenty-eight stories in height, on their little corner which only measures 57 by 72 feet.

The accompanying plan shows the relative space occupied by the walls in



the new system and the old, the dotted lines representing the portion of the area of a lot that solid brick walls would occupy. High buildings are demanded, and to-day there is simply

no limit to the height that a building can be safely erected. This result has been reached mainly through three inventions, all of which are distinctively American:

1. The modern passage elevator.
2. The flat-arch system for fire-proof floors; and
3. The skeleton construction.

The last enumerated one has only lately joined the combination in which the first two were so long inseperable, but it has come to stay, and the three work in unity for a common purpose. It is with the third invention that this article has to deal, but the other two form so important elements to a comprehensive understanding of the usefulness of the third, that a brief reference to them will be necessary.

Up to the year 1870 the elevator was not used to any great extent for passenger service. Many persons will recollect the old elevator in the Fifth Avenue Hotel, with its vertical iron screw extending the whole height of the elevator well, and passing through a sleeve in the centre of the car; very slow in movement, but safe, although frequently getting out of order. This was one of the first passenger elevators in this city. Improvements rapidly followed, until now great speed with absolute safety has been attained. It was the elevator that taught men to build higher and higher, for without the elevator a high building is impracticable. A story that long ago went the rounds emphasizes this fact. A gentleman had occasion to make a call upon an architect whose office was on the top story of a high building. The elevator service was temporarily stopped on account of repairs being made to the steam boiler, and the caller ascended by the stair-case, up flight after flight, towards the clouds until he finally reached his destination in an exhausted condition, when he feebly opened the door and inquired, Is Saint Peter in?

It was in the Post-office building in this city that for the first time in this or any other country was introduced hollow-tile flat arches between iron floor beams. This was the invention of Mr. Kreischer, a well-known manufacturer of fire-brick. His was not the invention of a flat arch in itself, but of a flat arch, whose end sections abut against rolled iron floor beams, and recess around the bottom flanges of the beams, having on top wooden sleepers and wooden flooring, thus forming a level ceiling underneath and a walking surface above. Previous to Mr. Kreischer's invention the method of filling in between iron beams was by means of common brick arches, leveled up on top with concrete, and floored over. On the underside the bottom surfaces of the beams were left exposed and painted. A ceiling of a room then consisted of a series of curved arches between iron beams, which were very unpleasant in their appearance and effect on the eye. If a level ceiling was determined upon, it had to be obtained by wooden or iron furrings and lathing, fastened up to the underside of the beams and then plastered. The flat-arch system provided a level ceiling at once, at a less cost and with much less weight of material than before. The iron beams were covered in and protected from fire, and the side walls had a lighter load to carry. A new impulse was given to fire-proof construction, and following the great fires in Chicago and Boston, the Kreischer system came into general use all over the country. In a legal contest that lasted for a number of years, it was finally decided in the U. S. Circuit Court that the Kreischer patent was void for want of originality under the crucial test of publications from all parts of the globe, that a patent must sustain when the law is invoked in its behalf. The decision of Judge Wallace prevented the inventor from realizing the profits of his invention. It did more, it deprived the inventor of the honor of having made the invention which abroad is recognized as an American system of fire-proof floorings.

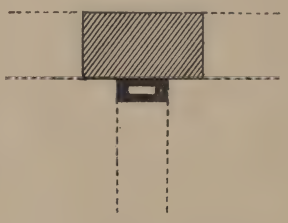
At a meeting of the Royal Institute of British Architects, held in December, 1882, Mr. A. J. Gale described various things which he had seen during his tour in the United States. Among other things he stated that "In New York at the time of his visit there were many vast building schemes in hand. . . . The floors were mostly

of fire-proof construction, consisting of iron beams filled in between with hollow tile flat arches, the iron being protected above and below, and joists being laid on the top surface." In connection with this statement, Mr. John Slater said: "It seemed to him that America was the country, par excellence, where suggestions were to be picked up by architects. To put the matter colloquially, it was the great place for 'tips,' and there could be no better place for an architect to visit than the States, after studying on the continent of Europe the artistic and archæological sides of his profession. The Americans were, in fact, so ingenious that their ingenuity was catching, and it appeared to be impossible for any one to visit the States without deriving much instruction. They would be taught the wholesome lesson that everything English was not necessarily the best. It was only in regard to what might be called the constructional part of an architect's profession that he made these remarks." The Chairman, Mr. Ewan Christian, said that "having had the advantage of traveling in America, though only for a short time, he was very much impressed by the go-aheadedness of Americans. If a man in the States brought out a good invention connected with building or anything else, it was straightway adopted all over the country until something better was produced, when that, in its turn was taken up."

The skeleton construction will entitle Americans to as much future praise as have ever been so generously given them for past improvements made in the art of building.

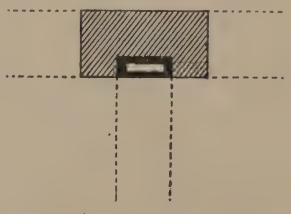
The whole history of science is one continuous illustration of the slow progress by which the human mind makes its advance in discovery. It is hardly perceptible, so little has been made by any one step in advance of the former state of things, because generally it will be found that just before there was something very nearly the same thing discovered or invented. This is true of the modern Elevator in its steps forward from the hoisting apparatus of the ancients. It is true of the American flat-arch floor system in the light of earlier publications made in France and other countries. It is true of the skeleton construction.

Without likening the skeleton to a cast iron front buried in a brick wall, its immediate predecessor can be seen in the devise frequently used to provide sufficient bearing strength in brick piers of too small an area to safely bear the load to be imposed without re-enforcement. A brick pier, of a size not larger than required for the safe support of the brick work above, is perhaps also required to carry the end of a line of girders supporting floor beams. An iron column is therefore placed im-

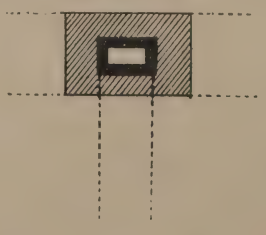


mediately adjoining the back of the pier.

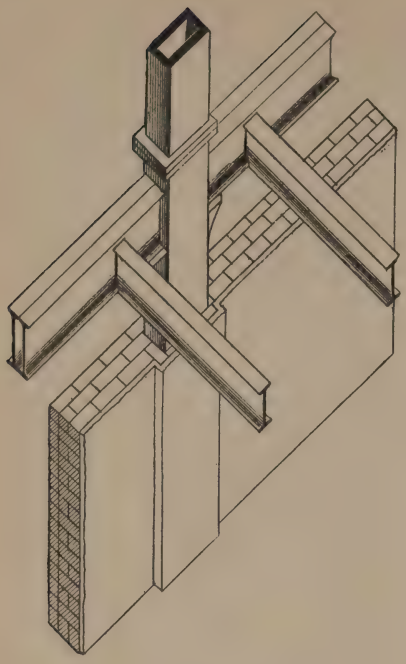
If the projection of the column be undesirable, then the column is embedded within the back line of the pier.

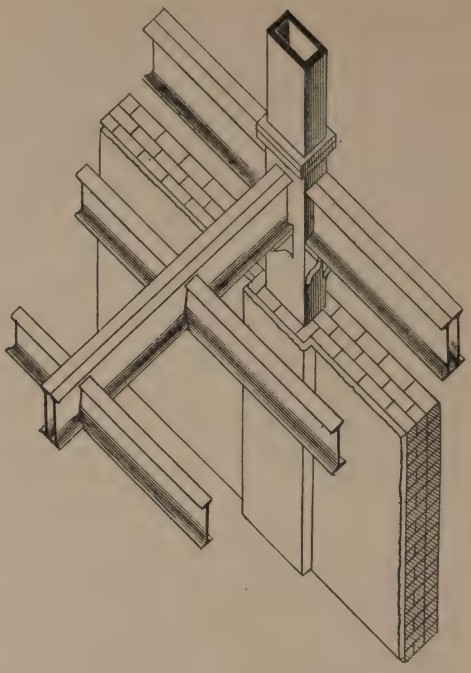


In the case of a flank wall on a street front, where the window openings are numerous and the brick piers too small to carry the weight of wall above and floor loads in addition, the piers have been



stiffened and strengthened or relieved of load by iron columns entirely con-





cealed within the piers, and iron lintels also concealed above the columns.

Such examples have been used repeatedly for many years, and contain all the essential features of the skeleton construction. The first complete cast-iron front ever erected in the world was put up in New York in 1848, yet that was but a repetition of iron columns and lintels long previously used as a substitute for stone and brick to the extent of a single story. So the skeleton is simply the evolution or expansion of the principal so long used in a smaller way. No patent stands in the way of the free use of the skeleton construction. A patent was issued in 1869 to a manufacturer of architectural iron work in New York, which covered the skeleton construction, but that patent expired by limitation five years ago, and the invention is now public property.

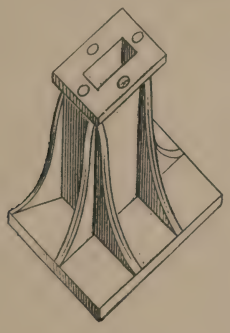
There are several variations in the use of iron skeletons. In some cases the frame is carried up to within three or four stories of the roof, and a solid brick wall used for the balance of the height, carried by the skeleton at the top line of the latter. In some cases the columns start from the base course of the foundations; in other cases from the top of the foundation wall, or the top of the basement story. There is still another method, such as was used in the *World* building, but which is not, strictly speaking, the skeleton construction, as the columns are not embedded in the walls but stand clear from the same; the walls are of solid brick and of great thickness, although supporting nothing but their own weight, which indeed is enormous on account of their great height. The floors are carried independently of the walls, and in this respect embodies the same principle as the skeleton construction.

One or the other of two methods is generally used in the skeleton construction. In one the girders are placed between the columns at each story and carry both the curtain walls and the ends of the floor beams. In the other the girders carry the curtain walls only, and are placed at every second or third story; the floor beams are supported by girders placed at right angles to the columns. In the foregoing cuts the two arrangements

are so clearly shown that further description is unnecessary. The small details of bolting, etc., have been omitted, as these would add nothing to the information that the drawings are intended to convey.

The inside four inches of the curtain walls are usually built with hollow bricks, of the dimensions of common brick, so as to allow of the plastering being done directly on the wall, and thus obviates the necessity for the use of furring to prevent dampness from striking through.

At the foot of each of the vertical lines of columns it is the general practice to use a cast-iron flanged base to



distribute the imposed load over a greater area of bearing surface.

Crib footings of rolled steel or wrought iron beams are frequently used; and when placed below the water line they should be thoroughly coated with coal tar applied hot.

For the skeleton construction the existing building law makes no special provision. At the time when the law was enacted, in 1887, the use of composite structures was not foreseen. True, under that law, walls may be constructed of stone, brick, iron or other hard incombustible material, and by implication a combination of any of these materials, but the skeleton has been ruled to be one of the kind of cases to which the law does not directly apply, and is therefore subject to the decision of the Board of Examiners whose permission must be obtained before such a structure can be proceeded with. The Board regulates its action in skeleton cases in accordance with one of the amendments contained in the revision of the building law which failed to pass the last Legisture of this State. The columns are required to have a casing of brick work not less than four inches in thickness which must be bonded into the brick work of the curtain walls. The exposed side of the girders are required to be similarly covered in. The thickness of a wall is determined by its height, but where walls are carried upon girders, the heights are measured from the top of such girders, except that no curtain wall is permitted less than 12 inches in thickness. The metal work is required to be painted before being set up in position.

In the greater number of skeleton buildings erected in New York the columns are of cast iron; in the smaller number rolled steel or wrought iron of various forms of section. Some constructors advocate the use of cast iron only as the material for the columns which are used in the walls. High buildings are erected for permanency, to last for centuries. When columns are built around with brick work they are buried out of sight for all time, so to speak. The oxide of iron paint, so commonly used for coating iron and steel work is largely mixed with fish oil instead of linseed oil, and soon dries out leaving a coating of dry, broken scale or powder. Between the columns and the outer air is only a few inches of brick or stone work, through which dampness or rain finds its way. In wrought iron rust is insidious, and it honeycombs and eats entirely through the metal. Mild steel, such as beams are rolled of, rusts faster than wrought iron at first, then slower. Cast iron, on the contrary, slowly oxides in damp situations; rust does not scale from it, and the oxidation when formed is of a much less dangerous kind, extending only a little way into that metal, to about the thickness of a knife-blade, and then stops for good. There are other dangers to be apprehended, such as gases and creosote from flues, escaping steam from defective pipes, leaks or an overflow of water, all quite possible and probable to reach the columns. Wrought iron is seriously affected by such mishaps, cast iron

practically not at all. Mild steel has come into use so recently that time has not yet enabled men to speak positively how short or how long it can retain its integrity in adverse situations. Damp plaster and cement corrode wrought iron and steel; lime is a preservative. If from any cause a column is affected in one place the entire structure above it is affected, but if a girder is affected the trouble is local for any one girder only carries a portion of the floor of one story and the bay or portion of the brick wall which reaches up to the next girder above. While failure in a girder would be far less disastrous than failure in a column, any trouble would be serious enough and fully warrants every precaution being taken in the first instance to avoid possible bad results. For wrought iron and steel columns a margin in material should be allowed to cover partial deterioration from rust. Instead of a low factor of safety, as 3 to 1, when weight is to be sustained by material that is to remain unimpaired, the factor should be as high as 5, to provide for the loss of a portion of the sectional area of such columns by rust, so that the remainder of the metal may be sufficient to safely carry the load calculated to be imposed. No part of the metal in a wrought iron or rolled steel column should be less than three-eighths of an inch in thickness, nor should such columns have an unsupported length of more than thirty times their least lateral dimension or diameter.

For beams and girders wrought iron has almost entirely superseded cast iron, and latterly rolled steel has crowded out wrought iron. The facility and promptness with which rolled beams can now be obtained; their admirable and scientific shape by which the greatest strength is obtained with the least weight of metal; the concise and simple tables of the bearing strength for the respective sizes and various lengths of beams freely circulated by the manufacturers; their reasonable prices; and the preference of architects and engineers to use wrought iron or steel when the load tends to separate or tear the metal asunder; all this has contributed to the extended use of wrought iron and steel for certain purposes. But for durability and lasting qualities under any and all circumstances of time and elements, particularly when buried out of sight in a casing not sufficiently thick to prevent dampness or wet or change of temperature from reaching the metal, as in the case of wall columns and beams for the support of the curtain walls, cast iron is the best material to use. For floor beams and for interior girders, wrought iron or rolled steel is matchless.

There was some fear expressed by members of the Board of Examiners when the first plans of the skeleton structures were presented for their approval, that the greater expansion of one material than of another, might work some trouble. The same bugbear had to be overcome when cast iron fronts were first introduced, when predictions of failure were based on the expansion and contraction of the metal. Events proved that the temperature of our climate, from the greatest cold to the greatest heat, exerts upon cast iron no appreciable effect, and for use in buildings is practically without expansibility. Cast iron, if of goodly thickness, offers a far better resistance to fire, or fire and water combined than wrought iron or steel. How well even thin plates of good cast iron will bear heat is shown in a familiar way by a common cook stove. Thin sheets of wrought iron will shrivel up almost like paper when brought in contact with flames. A comparatively moderate amount of heat will elongate and twist wrought iron and steel out of shape. When used for girders and floor beams they should be entirely encased in some non-conducting material. Whether columns of these materials should be encased is an open question. The advantage in one direction of a casing for wrought iron or rolled steel columns as a protection against fire, is a disadvantage in another direction, in that it may allow rusting to go on unseen to a dangerous extent. Covered or without covering, cast iron is the superior metal for columns. Cast iron is best for compression, rolled iron or steel for tension. The least thickness

for a cast iron column should be three-quarters of an inch, and the greatest unsupported length for such column should not exceed twenty times its average diameter. Usually the box form of cast iron column is employed, but in many respects the H-shape is the best for use in skeleton construction. In order to make allowance for poor quality of cast iron, and for unseen defects in the castings, the factor of safety for cast iron columns should be 6 to 1, the same as the present building law provides for all posts, columns and other vertical supports of every kind of material.

When cast iron is used architects should insist on having the very best kind. Many columns are made in the Pennsylvania iron districts of iron run directly from the blast furnace, thus saving the expense of re-melting pig iron in a foundry cupola. Such columns are almost as brittle as glass, and when so made should be prohibited by law from being used in a building. Pig iron, when melted in a cupola, changes its nature and becomes a different grade of iron, getting rid of a certain amount of impurities, such as combined carbon, which makes iron hard, and phosphorous, which is one of the elements of weakness in iron. The re-melting is not only a purifying process, but it is an annealing process as well. By melting different brands of pig iron together the mixture is given desired qualities which they do not possess separately. This is the practice in all the architectural iron foundaries in New York.

The brick work which surrounds the skeleton cannot entirely be depended upon as a protection for the metal against the effects of fire. The covering is thin, and at best brick work is not fire-proof. That bricks resist far better than anything else is beyond question, but a brick wall is quite another thing. The mortar joints compose nearly one-fourth of the whole wall, and lime mortar is no more proof against severe heat than is limestone. Consequently the bond, by burning out, allows the wall to fall, making the damage as complete as though the bricks had been devoured by the flames. The manner in which bricks are hurriedly and carelessly laid up in a wall, not slushed in on all sides with mortar as they should be, but with one inner side of each brick having little or no mortar at all against it, leaves countless air spaces within the wall, and the air within these confined chambers is expanded during a fire. If heated air will run an engine, its expansive force can surely aid in the overthrow and destruction of a brick wall.

The skeleton construction imposes no new conditions on the architect. It calls for no skillful treatment to make it appear what it is. The metal frame, like the bones in a human body, is concealed from sight. Indeed, the architect is relieved from many troublesome conditions. He may design his structure without regard to width of piers, so that a front of brick or stone may be made nearly as light and airy in appearance as one of cast iron, and with as large window openings as desired. The building is so tied together laterally and vertically as to resist wind pressure or any other strain with impunity.

Already the architectural appearance of New York is being altered by the skeleton structures. New opportunities are opening up for architects to display their skill in treating problems of height, such as their professional brethren of a few decades ago never dreamed. It remains to be seen whether the æsthetic spirit will keep pace with the mechanical progress in the art of building, and bring forth designs of grace and beauty for the tower-like structures, notwithstanding any pre-conceived notions of disproportion between height and width.

William J. Fryer, Jr.



Byzantine Architecture.—Part II.

(continued.)

We see that the Byzantine architects and sculptors were full of resources, both constructional and artistic: the dome "pendent by subtile magic" on its four pendentives was a prime invention; I say invention, because, though it may have been known for centuries, no one had before dared to use it on a grand scale. We say wrought-iron girders are an invention of the nineteenth century, though they were used in the third century at Caracalla's Baths. Heavy abutments had to be provided to resist the thrust of pendentives, domes, and semi-domes. Many of the curious flat apses with which Byzantine architecture abound were made to that end, though flat apses had been used very much earlier. All sorts of ingenious devices were used to save centering and its shoring, as I shall show you, and when the capitals of columns were required to be large and heavy to support immense superstructures, new forms and new adaptations of ornament had to be used.

Mr. Ruskin and Mr. W. Morris have both been eloquent on Byzantine Architecture; the latter went so far as to say publicly that the interior of Sta. Sophia was, in his opinion, the most beautiful in the world; and Professor Lewis, in his preface to Procopius' Buildings of Justinian, says: "Earthquakes and faults of construction occasioned the rebuilding of the great dome, but it still crowns, after a trial of more than 1,300 years, one of the most beautiful buildings in existence." I shall tell you what I think of it hereafter.

There is no recipe for invention, it is a gift; but when the elements of architecture have been learnt, there seems to me no better exercise as a preliminary to invention than studying how former architects adapted old forms to new wants, how they solved the new problems of construction that were forced upon them, and how they artistically treated those new forms, so as to bring them within the pale of architecture; nor a better study for sculptors than how to adapt the old ornament to the new forms, until they can invent new ornament for them.

Greek architecture was purely an artistic invention—the constructive principle was that of Egypt and Stonehenge. The Romans seem at first to have copied, as well as they could, the

debased Greek architecture of their day, to have introduced such alterations as would make every part conform to a general rule, and to alter the æsthetic part so as to make it more in accordance with their coarse taste and love of magnificence. After a time the arch was found to be too convenient to be disregarded, and gradually superseded its older and more dignified rival, the lintel. As soon as vaulting came into general use the thrusts had to be counteracted, for even supposing that the vaults when set had no thrust, this was not the case when they were green.

You can see how the halls or compartments, in large vaulted buildings such as the baths, were arranged, so as to act as counterpoises to one another. When groined vaults were adopted, projecting piers were brought out at the angles of each chamber and plain arches sprang from them next the walls, so as to provide abutments for the diagonal thrusts of the groins; where groined vaults were used in an apartment higher than the rest, the lower part of the wall was abutted by deep walls and by vaulted recesses, but above these, where the outer walls were comparatively thin, buttresses were used, as in the case of the tepidaria of all the baths and the nave of the basilica of Maxentius. In the West, before the emergence of the Byzantine style, the half-domes of apses were abutted by inclosing them in solid half-squares, the angles of which acted as buttresses.

The walls of circular-domed structures were either of enormous thickness, or else the structures were made square outside to get abutments at the angles. We see no signs of any great organic advance in construction, after the invention of groined vaults, until we come to the Baths of Constantine, where the groined vaults of the building in front of the Laconicum are abutted by shallow apses without solid angles. We know, too, that as these great tepidaria of the baths wanted lofty arches to the recesses both for effect and light, the entablatures between the columns were consequently dispensed with, and the columns were merely shores with a strip of entablature above them to help support the groins of the vault. I say help, because the entablatures then became lintels. When the architect of Caracalla's Baths wanted to make his celebrated solar cell, *i. e.*, a covered swimming bath lit from above, he could not vault it, or he would have blocked out the light from the tepidarium, so he hit upon the original scheme of carrying the flat roof and ceiling by means of wrought-iron girders, forestalling the modern English invention by some 1,600 years.

It is possible that at some future time, churches and cathedrals may be wanted whose plans and arrangements are adapted to the Protestant ritual. In the Byzantine churches we have every sort of plan that can well be imagined, circular, octagonal, square, trefoil, quarterfoil, cruciform, of many varieties, and of that form which the Byzantines called "in the shape of a circus," but which we call "in the form of a basilica," and these Byzantine churches might give hints for what is wanted for a true Protestant church or cathedral. Two-storied museums, picture and sculpture galleries may some day be wanted to show the works exhibited in their lower rooms instead of concealing them, and many Byzantine devices might give us hints how to do this.

The Byzantine churches were constructed of all sorts of materials. The walls mostly of stone, with a course of bricks between each stone, and the vaults and domes of burnt brick, and roofed in all sorts of ways from the common truss of perishable and inflammable wood to the permanent vault or dome. In Syria another form of roofing was used, *i. e.*, vast slabs of stone were supported on arches and formed the ceiling, and supported the rubble terraces that acted as roofs.

If we owed that Bulgarian peasant, Oupravda—afterwards called Justinian—a debt of gratitude for nothing else, we owe it to him for having Sta. Sophia built without wood, as well as for the excellent construction of the fortifications of the Castle of Edessa on the Euphrates, which have lasted to the present day. We, who are Londoners living in a brick district, naturally take the greatest interest in vaults and

domes of brick, as we have the materials at hand without the expense of carriage from a distance, besides being more familiar with brick construction, not to speak of brickwork having a flavor of the locality. Vaults and domes naturally took their rise in treeless countries. The old proverb says, "Necessity is the mother of invention," and were good timber was not to be had, some other means of covering had to be devised.

We see how the people of Persia and Mesopotamia contrived to cover their buildings with vaults and domes almost without centering, from having no other means of roofing. Strabo (Lib. 16, c. 1, p. 5), speaking of Babylon, says: "Whence among the seven wonders of the world are reckoned this wall and the hanging gardens. . . . the garden consists of vaulted terraces, raised one above another, and resting upon cube-shaped pillars. . . . The pillars, the vaults and the terraces are constructed of baked brick and asphalt," and, in speaking of the city, he says: "All the houses are vaulted on account of the want of timber. For the country is bare, a great part of it is covered with shrubs, and produces nothing but the palm."

Now and then in London we see a vaulted church or a vaulted hall, but the greater part of our buildings are only walls with a wooden roof; even St. Paul's would present us with the lantern on a limekiln if the wooden dome were burnt, and the fall of the timber did not bring down the cone. Ware says "It is the roof that makes the house," and it is pitiable to think that a fire would reduce nearly all our great buildings to the state of walls, for most of the great vaulted constructions we simulate are built by us of lath and plaster. The great Ahmed-Ibn-Touloun showed his wisdom in forcing his Coptic architect to build his Mosque at Cairo of burnt brick, saying that every other material perished by fire or water. When we recollect what architecture does for a country we ought to insist that our national buildings should be built of burnt brick and vaulted with the same material, so that when our empire has passed away there may be remnants left of our former greatness.

You all know that I am a great advocate for the architectural use of iron, but under the destructive influence of fire iron is even more ruinons to structures than wood itself, and stone and marble calcine, or split to pieces.

The value of the past is in the priceless lessons it can give us for present use. The study of Virgil gave the world the Divina Commedia of Dante, and the study of the written masterpieces of antiquity the present literature of Europe; the study of the fragments of antique sculpture revived the sculptors' art, and gave dignity to painting. Even in the present day, the discovery of the ruins of an ancient civilization may be fraught with wonderful and unhoped-for results. Look at M. Dieulafoy's discovery of the ruins of the Persian palaces! The magnificent enamelled friezes from the Palaces of Darius and Xerxes, that were found at Susa, have not only enlarged the minds of every visitor to the Louvre, have given an almost unique lesson in monumental coloring, but have also given a fresh impetus to that beautiful branch of art, enamelled pottery. All of the roofs of last year's Exhibition building at Paris were resplendent with color, wholly due to the exhibition of those enamelled friezes. I do not grudge our gifted neighbors these well-earned trophies, of which they have made so excellent a use, but we cannot forget that it was the parsimony of our Government that prevented us from having them. Loftus began the excavations in that very mound some thirty-five years ago, and had to relinquish them for want of funds.

I will, however, return to my subject, and try and whet your appetites for learning more about Byzantine architecture. Though the Byzantines had become Christians, they by no means eschewed those sins which are denounced under the names of the "lust of the eye" and the "pride of life." When these sins were indulged in for ecclesiastical buildings, furniture, and dresses, they were supposed to be peculiarly favored by Heaven. Procopius tells us that Justinian having ordered a

church to be built at Jerusalem, in honor of the Virgin, required it to be "surrounded on every side with columns such as in beauty would be worthy of the main building, and of a size capable of supporting the weight that would be laid upon them," but from the precipitous character of the place such columns could not be brought there. He goes on to say that "while, however, the Emperor was grieving at this difficulty, God pointed out, for this purpose, in the nearest mountains a bed of stone of a kind suitable for this purpose, which either had existed there in former times, and been concealed, or was then created. Either story is credible." And he tells us that these columns were "of a color that resembles flame." In addition to this new marble every splendid marble that had adorned ancient temples not only in Rome, but in all the Roman provinces, had been stripped from them, and conveyed to Constantinople to enrich the churches; glass mosaic was manufactured there; gold and silver, precious gems, and costly stuffs were given to the churches in profusion, and as the silkworm had been introduced into Constantinople there was no lack of silk. Procopius says in the Sanctuary of Santa Sophia alone there were 40,000 pounds weight of silver, of which the iconostasis and furniture were composed. And Paul the Silentiary says: "In the circular part under the great dome was the Ambo, which was built of the rarest marbles, enriched with precious stones and ornaments in enamelled gold. This tribune, big enough, for the consecration of the Emperors was crowned with a dome covered with plates of gold enriched with gems; a great cross, ornamented with rubies and whole pearls, completed the decoration."

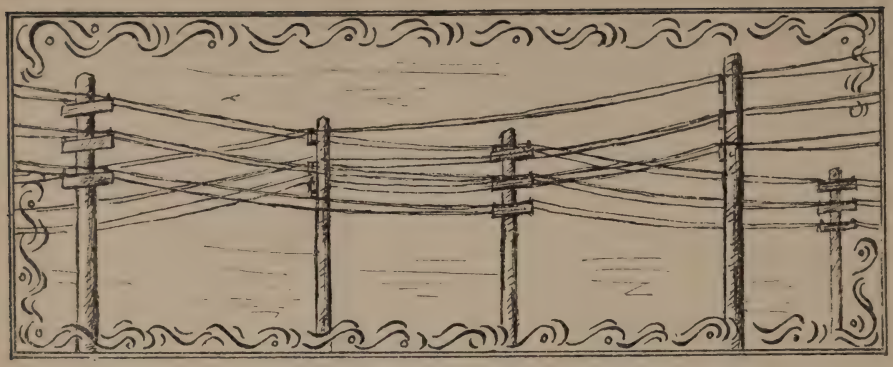
I think I have already said enough about Byzantine architecture to interest you in it, but I will say a few words more about Byzantium and the Byzantine Empire. Though architecture is our study, we cannot be altogether indifferent to those other fine arts which so greatly add to its beauty and interest; we must have some feeling of respect for the centre of an empire which was so long a bulwark against barbarism, and for that seat of art and learning from which cultivation was obtained: we can hardly expect architecture to be desired and appreciated by people who are wholly destitute of any feeling for the fine arts. Byzantium itself was a centre of all the arts, and though they did not flourish there as perfectly as at Athens in the days of Pericles, nor even as they did at Rome in the days of Augustus, yet the fine arts to a certain extent were there when they were extinct in the West. At Byzantium the traditions of antiquity were at least kept up, and in this way it was able to sow elsewhere the seed of artistic regeneration.

Byzantium supplied twelve thousand artisans for the construction of Walid the First's Mosque at Damascus between 708 and 718 A.D., and supplied him as well with the mosaic; it furnished architects and artificers to Charlemagne (771–814), and to Abd-el-Rahman the First at Cordova (755–787). Subsequently it sent architects to design and superintend the building of St. Mark's at Venice, and probably these same architects built St. Front, at Perigueux, and to its arts we mainly owe the Cathedral of St. Trophime, at Arles, and St. Gilles.

It was for many centuries a barrier against the devastation of the savages, and a bulwark against Mohammedan invasion, until it was left to its fate by the European nations through theological hatred. To the learned men it still cherished, to the codices of the ancient writers it preserved, and to the engraved gems, the bas-reliefs, and the statues it cherished, we mainly owe the great Renaissance of the fifteenth century, from which we are still reaping the benefits, and from the escape of its scholars before its last throes we owe the knowledge and study of Greek throughout Christendom.

Professor Aitchison.

(TO BE CONTINUED.)



CROSS-CURRENTS.

TO the many terrors proverbially possessed by death, has now been added the terror of posthumous notoriety. The obituary writer, with his blank array of dates and facts, set in a frame of meaningless and indiscriminate praise, is a matter no more to be pleasantly contemplated by the wise man preparing for death than a smattering of dead flies in a pool of thin molasses; but the post-mortem *raconteur* is even more unpleasantly suggestive. If Manfred had been a living celebrity instead of the paper offspring of the "bilious Childe," never would he have said:

"Old man! 'tis not so hard to die."

Being an emotional hero, he might in a weak moment have anticipated, with something like pleasure, a few newspaper anecdotes about his wanderings through the Alps, and the various supernatural entities which enlivened his path; but even his love for attitudinizing would shrivel at the thought of being minced to make an American newspaper. No doubt, many men of reputation have something of the Manfred in them. Being in the eye of the public, unless their natures are very simple and sincere, they naturally fall into a habit of posing; but if at the same time they are sensible men, they know that too many postures and too liberal a publicity makes them absurd and common. While they live, they can so shape their lives and form their acquaintances as to keep the anecdote-seeker at a safe distance; but death is a signal for a flood of wickedly false or foolishly true reminiscences to be poured on a public greedy with baleful curiosity. It is bad enough to have one's biography written by a sympathetic, intelligent and accurate friend, with access to all the available material, for even then it is really some other man that is delineated; but to have one's memory snatched up by a multitude of ignorant, careless, stupid and often malicious scribblers and hashed into unseasoned "copy," to have one's weakest driblets of conversation passed off as profound sayings or delightfully humorous tid-bits, to have one's most cherished and tenderest associations distortedly distributed to a heedless multitude—all that is profoundly obnoxious.

We need scarcely say that it is not the anecdotes and reminiscences that of themselves are objectionable. If properly told, they are far less objectionable than a set and formal biography, which is necessarily unsatisfactory. We thoroughly sympathize with any author who throws what obstacles he can in the way of his prospective and inevitable biographer. The latter is nearly always wrecked between the danger of including too much and including too little; he may not tell everything he knows, and there is much which he does not know. A life cannot be written in black and white, not even by the man himself. On the other hand, reminiscences that really mean something, that betray some trait of character or include some shrewd saw told pleasantly and gracefully, may be as serviceable to the critic of the author's works as they are delightful to his admirers. These reminiscences do not pretend to be more than momentarily descriptive. They tell the tale of the man, not as he was, but simply as he occasionally appeared to keen and perhaps fond observers;

they illustrate his social personality. To ask to know this is not to ask too much; more than this he has every right to reserve. Such reminiscences, with a plain account of the facts of his life, should be sufficient for both critic and admirer; his works, if they be well read, would tell the rest. For our part we should be glad to see all famous men follow the example of the pious Bishop Butler and destroy their private papers. Such a course would make their writings the more closely and fruitfully studied.

But the post-mortem story-teller often exercises no discrimination. He writes for a multitude of people who know only the name of the corpse; and for a time anything with that name in it finds a ready reading. Sometimes he has met the departed celebrity casually; he can write in a tone of a personal acquaintance and include copious I's in the narrative; but as a rule his ammunition is all second-hand. He either misreads or garbles the authentic recollections of a personal friend, or he comes across some nonentity who has known the celebrity. The few formal words that the great man uttered, which were perhaps pleasantly turned, are given out as characteristic and pregnant sayings. But worst of all is the close and often indelicate scrutiny to which the details of his private life are subjected, for your indiscriminate post-mortem *raconteur* never knows, of course, what not to report. The effect of all this is often very unfortunate. Spurious anecdotes are circulated, false impressions created; and the only man who can put things straight is safely surrounded by dirt. Just because these reminiscences are so suggestive, so delightful, and frequently so instructive when they are judiciously, truthfully and sympathetically told, they become barren, absurd and tiresome when retailed by some blunderer or inconsequent.

It is to be hoped that the obituary writers and post-mortem *raconteurs* will retain their literary integrity. In the increasing specialization of newspaper work they will doubtless become largely, as they are now partially, a particular class; and when this time arrives they will possess a peculiar power and become very desirable associates—to men seeking notoriety on the other side of the grave. For this reason the proprietors of newspapers will be wise beyond their publications in resisting firmly any tendency to sign obituaries. A great many people are committing suicide nowadays for the apparent purpose of attracting public attention to their own precious personalities; and it is patent that the writer of facile death notices would be in great demand with such theatrical enthusiasts. Fame on this side of the dividing line is all very well. One can attain it by putting a great deal of "individuality" into a very little work, and then courting "literary" friends. How many people have been written into a reputation by others! But there is one drawback to this. A reputation has to be maintained, and is not consequently all a joy. It is frequently very difficult and somewhat trying to keep one's "literary" friends up to the proper writing point. Now a post-mortem reputation has no such abatement of its charm; and circussy suicides might very well attempt to attain it by similar methods. True, only a posthumous mortality would be granted to such an one, for the newspapers are the graves, as they are the creators of reputations; but even a few days of public existence would be something. Let us be modest in longings for a journalistic life after death.—*Primus*.

That the biography of Richard Monckton Milnes, the first Lord Houghton, should be written by T. Wemyss Reid is perhaps more fortunate for the late lord than for the living author. No friend of Milnes need fear to trust the latter's memory to the former's account of his life. The book is pleasant reading from one end to the other; it makes one know the man (to a certain extent) and like him. Mr. Reid's success is, then, indubitable, and I should add it was no easy matter to dress up such a life for the public. There were so many points that needed explanation that the elements of a good *showing* were lacking. It follows that since Mr. Reid is always removing plausible misconceptions, the book is pervaded with an undeniable flavor of advocacy; but by this I do not mean to impeach his fairness. A case had to be made for much in Milnes' life; his biographer had much to carry. It was not a massive force, bearing all its littleness with ease, forever revealing its own strength and rejoicing in the revelation; it was not a simple, steadfast life, that reveals itself completely, firmly and quietly; it was, on the contrary, rather a mixed life, the current of which wandered deviously and as it were uncertainly over many fields—with great good to some and great waste.

One result of this is that the contributions of Milnes to his own biography are not on the whole the most interesting parts thereof. His external associations formed such an important part of his life, that his story is told largely through them. Correspondents must have found his letters

pleasant to receive; but he was not a good letter writer, and they do not contain very much charm for an outsider. Of incidents and actions there are few to be called prominent. In spite of any interest we may feel in the man, the parts of the book that read most pleasantly are the letters of his friends and the explanations of Mr. Reid; yet this statement, standing alone, would create a false impression. While the letters of his friends to him are interesting in themselves, and often eminently readable, yet the man to whom they are written is responsible for no small part of the interest and the charm. And Mr. Reid's explanations and additions, in excellent taste and happily worded though they are, derive interest mainly from their subject. Milnes gains a good deal by being presented to the reader mediately; because being something of a woman, he exerted his best influence through personal contact—on the few not on the many. He was probably the most indefatigable seeker after men of reputation and ability that his day and generation saw. People accused him of a mere vulgar curiosity, of being a hunter after celebrities; but there can be no doubt that the mainspring of his desire to meet clever people was an eager interest in them—in their ideas, in their work, and in their personalities; and that his mental vivacity helped to stimulate, and his mental hospitality to encourage many even of his most casual acquaintances. His manner was captivating and pervasive. Tennyson said that his presence in a room at once put everybody into a good humor; and this tribute is a key to his excellences, his peculiarities and his popularity. He helped both Tennyson and Swinburne to fame and influence by being the first to publish critical estimates of their works which recognized the fullness of the poetical genius of each. Others he assisted by advice. Still others he opened his purse to; and by using his large social influence in their behalf, secured to them the start which subsequently led to success. The extent to which he endeared himself to literary England was fittingly displayed by the large number of published regrets which his death called forth—a number out of all proportion to his direct public standing.

Yet it is obvious that if this best part of his life had been all there was of it, his biography would never have been written. A man whose nature is most fruitful through personal effect must be content to have his tale untold. If his friends be prominent men, his name may figure in their lives; and, no doubt, Milnes will receive mention in the biographies of many famous men of his time—as it has already been mentioned in that of Carlyle and others. Such a record alone would, of course, be very incomplete; by far the larger number of his friends, acquaintances and dependents never will have their biographies written: and it is something of a pity for Milnes' sake that the England of the present century has not been an England of memoirs; for if it had, he assuredly would have been remembered through many pages. But there is really no way in which this incompleteness can be properly remedied. The life of a statesman, a general, a man of action of any kind tells itself with a reasonable degree of truth; the life of a poet, an artist, or a man of expression can be told plausibly, and we have his works to round off the tale; but a man of character, whose effects are exerted through personal contact—his life, although its influence may be as beneficial and its message may be as vital as those of the other two, can never be adequately delineated. We can get glimpses and suggestions, but that is all.

I may have seemed to go too far in saying this of a man of such diverse and multitudinous activities as Milnes—a man who apparently sought and certainly attained much publicity throughout something like fifty years—a man who was poet, statesman, diplomatist, wit, reformer, philanthropist amd scientist, and at different times well advertised in all of these occupations. I have, however, no intention of under-estimating his public enterprises. This is no time or place to put a careful value on them. During his early years his poetry was very popular, so much so that he was regarded as Tennyson's most promising rival. Lately it has been almost entirely neglected save by them who knew something about the man; but if it did not deserve its ephemeral popularity, competent critics are agreed in asserting that it as little deserves its subsequent neglect. As one would imagine, there is a wonderfully wide chasm between his best efforts and his poorest, his inspiration frequently failed and he fell back on current affectations. Some few of his poems, however, ought to find a place in any anthology of the best English verse. As a member of Parliament, he was active, prominent and conscientious, but not very successful—largely because, though ordinarily he was a party man, his opinions were always formed independently, and often led to independent action. He was eagerly and peristently interested in many of the social reforms of his time; but the few with which his name is particularly identified are not of much importance. His social duties were of

the most varying and occupying description, for he was a generous entertainer and a frequent visitor. Besides all these interests he had many smaller ones, such as bibliophilism, charities of various kinds, and essay-writing for the quarterly reviews and some of the monthlies and weeklies. It is evident, however, that every one of these occupations interfered with all the others; and for that or some deeper reason he was not in the front rank either as a writer, a politician, a scholar, or anything else.

The fact was that Milnes' life lacked an end, and any proper subordination of part thereto. He took no means of making his work peristent and effective. His disposition was mercurial and altogether too easily discouraged. Nearly the whole of his poetical activity was included within ten years of his younger life: during part of the same time and for somewhat longer, he made a specialty of continental politics and foreign affairs generally, his purpose being to qualify himself for a ministerial office. After a couple of disappointments, however, he utterly relinquished that specific end and settled down as a kind of literary expert, social leader and political independent. He still retained the keenest interest in the affairs of the day; but allied himself most actively with young and needy causes—the kind that would be most benefited by the assistance of a person with his name and social influence. In the end he naturally felt that his life had not been altogether a success, and an observer must reluctantly agree with him. Every person whose aims are noble will feel when the time comes for finally taking stock of his own position, that most of his objects remain unfulfilled, and consequently he may call his life a failure, but in Milnes' case the failure was not primarily due to stubborn circumstances, but to the want of any integrity of purpose.

That a nature so sound, so mature, and so rich should have left nothing permanent behind it is a great pity; and, unfortunately, although we know our loss, we cannot estimate our gain. For amid the confusion of diverse aims—some trivial, some halting, and nearly all conflicting—the sweet, hospitable, generous and stimulating nature of the man stands out with great distinctness; and we can never tell how much his contemporaries owed to its action. If it was much, his life was no failure whatever the result of his more immediately practical aims, for the possibilities of effective influence by a fresh, persuasive and captivating personality are boundless. In the necessary absence, however, of any such knowledge, one can only regret the palpable loss. Here was a nature that seemed to be highly and richly adapted to beneficent and successful achievement. Contributions to its abounding life poured in from every source; but they gathered as in a great lake, and instead of rushing out in some fit and ample channel, were gradually evaporated or trickled away in a thousand little outlets. In putting down his biography, one can only say with a sigh: "It was a good life. Would that mine might be as worthy. But there was pity in it."—*Secundus.*

MEN WHO HAVE ASSISTED IN THE DEVELOPMENT OF ARCHITECTURAL RESOURCES.—No. 1.

JOHN B. CORNELL.

THE history of successful men teach important lessons, and give encouragement to those who are struggling amidst adverse circumstances.

John B. Cornell, to whose energy and ability the present condition of the iron trade (particularly in New York) is due in no small part, was born on Long Island, Feb. 7, 1821. After the ordinary schooling that boys received in those days, he was placed with his elder brother, George, in New York as an apprentice to learn the trade of a worker in iron, in the manufacture of wrought-iron-doors, shutters, gratings, railings and other iron work for buildings. Shortly after starting in business for himself, in 1847, when the architectural iron business was in its infancy, John B. took into partnership his younger brother, William W., under the firm name of J. B. & W. W. Cornell; and they continued as partners until the latter's death, which occurred in 1870. When Mr. Cornell commenced business it was in a small way, and in a modest building, on Centre street, just south of Walker street, where now stands the large building which the firm in due course of time erected for their office purposes, and which is still occupied as the office by the successor of the old firm, J. M. Cornell, son of John B. Cornell, under the present title of J. B. & J. M. Cornell. Business steadily increased with the young firm, and in 1856 additional adjoining lots were leased and an iron foundry erected. Greater shop capacity was soon required, and in 1859 large foundries and fitting shops were built near the foot of West 26th street, that in the course of a few years spread out to cover some seventy full city lots of ground, with a river frontage, the



JOHN B. CORNELL.

buildings filled with all the best known appliances for working wrought iron and making castings.

The small foundry in Centre street was started principally to cast chilled iron for safe and bank vault work. In the manufacture of bank vaults the firm acquired an extended reputation. In those days the steel industry had no place in this country. Wrought iron I beams were not rolled here until 1860, and for years after that date 7-inch beams were the only size that could be had of American manufacture. Structural iron was nearly all imported from abroad. More pig iron was imported than was produced in this country. But a new industry was looming up in New York, that of cast-iron fronts for buildings. One-story iron front columns with rolling iron shutters had long been used. Entire fronts of cast iron was the natural sequence. Instead of stone ashler with an architrave around each window opening, as was the usual style of commercial buildings, came iron columns and arches and projecting cornices for the upper stories as well as for the first story, and at a cost far less than the same designs could be executed in stone. The Messrs. Cornell read correctly the signs of the times, and increased the size of their works to meet the public demand for iron fronts. The architects who had the largest practice were those who, like John Kellum and Griffith Thomas, designed the most in cast iron. The architectural iron industry was fortunate in receiving the early patronage of some of the most intelligent and best known of the large property-owners, such as the Harpers, A. T. Stewart, Peter Gilsey, the Goelets and others.

It is the province of the contractor or manufacturer to produce what the architect may design. Architectural critics have rarely had a good word to say in favor of cast-iron fronts. Their demand has been for such a treatment of an iron front that it will unmistakably bear the stamp of cast metal, and they blame designers of iron fronts for following outlines and proportions suitable to stone, insisting that an iron architecture should be invented, if none yet exists, one that will give an expressive treatment and an appropriate decoration to the material used. In architecture the recognition of permanency is one of the true principles of the art. A front must not only be strong enough, but it must possess an evident reserve of strength, which is the result of obvious abundance. A building should bear the impress of solidity, as though it were indeed a growth of the earth itself, and not of so fragile an appearance that the winds can blow it away.

In the initiatory steps for the manufacture of iron fronts a great deal of ingenuity and experiment were required. Mr. Cornell had much inventive skill, and the records of the Patent Office bear testimony to many ideas originated by him, such as his rolling shutter, his dove-tail sheet lath, and his double shell iron column, all of which have been extensively used.

A large mechanical establishment must be constantly and unremittingly kept supplied with work to make it profitable. There came stagnant times in building operations, and when work in other channels had to be sought out. Following the outbreak of the Civil War, the Messrs. Cornell built turrets for the Ericson monitors and other work for the Navy and War Departments of the Government. Later, when a dull spell occurred in 1876, the firm went into elevated railroad building for the New York, and afterwards for the Brooklyn companies.

A photographic view of A. T. Stewart's store building is given on the following page, by way of illustrating the magnitude and character of the Messrs. Cornell's manufacture. It is now thirty-two years since the first section of that store front was set up in place.

Stewart's store covers an entire block of ground bounded by Broadway, Ninth and Tenth streets and Fourth avenue, in size nearly 200 feet in width, by 328 feet as the greatest depth. Mr. Stewart was an enthusiastic advocate of cast-iron fronts for commercial structures, believing that the material had in its favor unequalled advantages of lightness, strength, durability, economy, incombustibility and ready renovation. His down-town store, at Broadway and Chambers street, was of marble above the first story, cumbrous and excluding light. His up-town store gave the ample light that this merchant had learned was so valuable for his business. In its dress of white paint, Mr. Stewart used often to liken his iron front to puffs of white clouds, arch upon arch, rising 85 feet above the sidewalk. When Mr. Stewart, in 1870, erected his Women's Home on Fourth avenue, Thirty-second and Thirty-third streets, a fire-proof structure, he adopted cast iron as the material for the fronts, and that without any desire to save in the first cost of what he generously intended should be a gift to the public. Mr. Stewart's architect was Mr. John Kellum. Another of Mr. Kellum's iron front buildings is that of Tiffany & Co., jewelers, Union square and Fifteenth street, also executed by the Messrs. Cornell.



Broadway, New York City. STEWART BUILDING, John Kellum, Architect.

The dry-goods store of Messrs. Arnold & Constable, Broadway, Nineteenth street and Fifth avenue, was built in two sections, the easterly portion first, with marble fronts above the first story, and the westerly portion next, fire-proof and with cast-iron fronts. The architect was Griffith Thomas, the contractors for the iron work, the Messrs. Cornell. Another of Mr. Thomas' iron fronts is that of the Domestic Sewing Machine Company, on the southwest corner Fourteenth street and Broadway, and made by the Messrs. Cornell.

Light, sunshine and pure air are modern innovations in business houses. The time was when bright and healthful surroundings were deemed incompatible with commercial thrift, and business was carried on in dingy, gas-lit cells. The old race of merchants and bankers lavished their gains on their residences, to which they escaped with all the zest such a contrast could give between home and office, but their clerks toiled on in sedentary labor, blanched in countenances and withered in forms. The time did come, however, when beauty, sunshine and health united in the environments of trade, and to the introduction of cast-iron fronts is the wonderful change primarily due.

The process of manufacturing an iron front is interesting in every stage, from the time when the architect's small scale elevations are received until the finishing coat is put on the work set up in place. Large scale drawings are made, followed by full-size drawings of the principal parts. Then the patterns are prepared. In the foundry the pieces are moulded in sand and the castings made. Cleaning, chipping and filing next follow. The ends of the cast columns are cut off true and smooth in a double-ended rotary facing machine, In the fitting shop the columns are laid on their backs, spaced the right distance apart, bolted together story upon story. The light castings, the arches, the soffits, the sills, the ornaments, are all fitted in their place and bolted or secured fast. Lying on the floor the iron front is thus put together in all its parts. A surface coat of oxide of iron paint is given to the work. The parts are then separated, care being taken to mark each piece so that it can be put back in its proper place. All surfaces that the first coat of paint did not cover are now painted, including the opposite surfaces of the light castings. The parts are laid aside in an orderly manner, until the building is ready to have the front set up. The making of iron fronts is only one branch of the general manufacture of iron-work for buildings, which includes forging, blacksmithing, punching, drilling, planing, rivetting.

It is somewhat difficult to speak of John B. Cornell without linking in the same sentence the name of his brother, William W., in the praise that both are entitled to in organizing, systematizing, and conducting so vast and complicated a manufacturing business, and creating a new industry. Both were men of discernment, energetic and progressive. Both commanded the respect of their fellow citizens, to which their well-tried integrity and upright course entitled them. Their views were alike in many respects. In religious beliefs both were earnest members of the Methodist Episcopal Church, to which they made large contributions. In William's death the Methodists lost one of their most active and liberal members.

When the manufacturers of architectural iron-work in New York and vicinity organized into an association to advance the best interest of their trade, Mr. John B. Cornell was elected president thereof, a position which he continued to hold until his death. When the constitution of that society was being drafted, Mr. Cornell insisted that it should recite that the society should neither fix wages nor selling prices; that each and every member should be entirely free to employ whomsoever he saw fit, and for whatever he should deem best, and to sell his manufactured products and wares at any price and on any terms he pleased; and that in no way and at no time should individual liberty be abridged or restricted by society action. This declaration of principles discloses Mr. Cornell's love for fairness and freedom in business transactions. The respect and esteem of his fellow iron manufacturers is shown in his repeated re-election as president of the society over which he continuously presided for many years.

Mr. Cornell long resided, prior to his death, on the nortwest corner of Fifth avenue and Forty-fourth street. The house was recently altered in the lower stories, and is now occupied by the Fifth Avenue Bank. Mr. Cornell died October 26, 1887. The memorial resolutions adopted by the Society of Architectural Iron Manufacturers declares that his career illustrates how a man can be a true christian, a patriotic citizen and a just employer. The history of his life does indeed present an encouraging example of success by straightforward and legitimate enterprise.

THE NEW EDITION OF FERGUSSON.

History of the Modern Styles of Architecture. By James Fergusson, D.C.L., F.R.S., etc. Third Edition. Revised by Robert Kerr, Architect, F.R.I.B.A., etc. In Two Volumes. With Illustrations. New York: Dodd, Mead & Co. 1890.

To the student of architecture, Fergusson's works, however unsatisfactory they may be, are indispensable. No other author has so nearly covered the whole field, or produced a book for popular reading in which the history of architecture is so well presented. This is as true of his "History of the Modern Styles" as of his general "History" and of his "History of Indian and Eastern Architecture." Not one of these is satisfactory, as we have intimated, and yet there is no other book that covers the same ground. His books on ancient architecture are unsatisfactory in great part by reason of his proneness to indulge in fantastic "restorations" for which better instructed archæologists find no warrant, and which indicate rather what he thought ought to have been done than what in fact was done. A French archæologist observed of his restoration of the Erechtheum that "nothing whatever exists to support these suppositions." An American architect observed of his theory of the method in which the Greek temples were lighted: "That is the way in which Fergusson would have done it, but it is not the way in which a Greek architect would have done it." Mr. Fergusson, indeed, enjoys the unique distinction of having produced a standard work upon a subject upon which nobody regards him as an authority. In Indian architecture he is, indeed, an authority, and even the authority, but that is only because there is no other. It is an illustration of the general ignorance and incuriosity of Anglo-Indians touching the country they govern that Mr. Fergusson should have been almost the only Englishman resident in India who has paid systematic attention to the monuments of the former possessors of the land.

In the body of his history Mr. Fergusson's defects are a general lack of perception of the subtleties of architectural art, and a tendency to dogmatize from rules of his own creation, which are commonly founded not in the nature of things but only in the nature of Fergusson. His account of Gothic art is moreover in a great measure vitiated by his individual dislike of it in comparison with antique architecture. This constitutes a personal equation which he could not allow for, because it seems that men are born Romanticists or Classicists, as they are born with black hair or red. This dislike appears, not only in his preference for other modes of building, but also in his preference, among buildings of the Gothic period, for those which are least Gothic. This coöperates with his patriotism to make him overestimate most absurdly the value of English Gothic in comparison with that of France or even with that of Germany, and to praise the English architects for their superiority in various points, when, as Mr. Moore has lately shown, what he is really praising them for is for not understanding the French Gothic they attempted to domesticate. On these accounts and on others, he is a very unsafe guide, and yet, as we say, his books are indispensable. They are indispensable by reason of the extent of the field they cover, and especially by reason of the range and number of the illustrations, and the judgment with which the subjects of these are chosen. So that, to the reader who reasons upon what he reads, Mr. Fergusson ordinarily supplies the means for refuting himself.

The "History of the Modern Styles" is as valuable as his other books, in the respects in

which they are valuable ; but it is even weaker in the respects in which they are weak. In any case, a work on modern architecture that is twenty years old would stand in need of revision ; and the latest edition of Fergusson before that under notice bears the date of 1873. His account of modern architecture on the Continent of Europe needs no revision, and not very much extension. There has been no architectural revolution, nor even an architectural "movement" since his book was written, but only the addition of new examples to a well understood and universally practiced style. Of the works of this style, too, Mr. Fergusson was an impartial if not a highly discriminating critic. All that was needed for this part of the book was the addition of the most striking examples that have been furnished since Mr. Fergusson's time, and an occasional correction of his eccentricities. The examples have been chosen with excellent judgment, for the new Hôtel de Ville and the Faculty of Medicine in Paris, the library in Marseilles, and the Palais de Justice in Brussels, with the street fronts from Berlin and Vienna, are nearly all admirable and are all highly typical buildings.

It is in the treatment of English and American architecture that the book needed to be revised and even castigated as well as modernized. Fergusson's account of architecture in the United States is disgracefully incompetent and ignorant, as well as contemptuous. It is true he wrote in 1873, but in 1873 Trinity Church was nearly thirty years old, and photography was available. Fancy describing "Calvary Church" and "the Church of the Holy Redeemer in Third street" as among the most creditable buildings in New York, even at that time, and referring for authority as to what was going on to "some recent paragraphs in American papers!" The publishers would have done honor to Fergusson's memory by destroying the plates which bear witness to an ignorance that is certainly careless if not willful, and employing the editor to treat the whole subject anew. This he has, to be sure, virtually done in an additional chapter on "Recent Architecture in the United States," which is very well informed and highly appreciative, not merely of the achievements of the better of our architects, but also of the aims and tendencies manifested in their works. The influence of Richardson, which is the most conspicuous fact in our recent architecture, is recognized and traced to its true source, and Richardson's own work is very fairly estimated. The examples chosen for illustration are selected with reasonable skill. If the selection is not such as would be made by a traveler of Professor Kerr's perspicuity from an observation of the buildings themselves, it is a highly creditable selection to have been made by a foreign critic from such sources as were accessible to him at home. The chapter on American architecture will repay a careful perusal by all readers who are interested in its subject. Of course they will wish it were longer and more exhaustive, but that is a desideratum that can be supplied only by a history of American architecture for American readers, a work for which the time seems now to be ripe.

The other blot upon Fergusson's book is his account of the English Gothic revival, and this is perhaps even less excusable, since his material was abundant and easily accessible. He erred here willfully and through the violence of his prejudice. Nobody could imagine from his account of the revival that it had enlisted the enthusiastic efforts of a number of able and disciplined artists, who made a great mark in the history of English architecture. His treatment of these men and their work is outrageously peevish and contemptuous, and his selection of illustrations of their work seems to have been satirical. His editor, without directly contradicting him, has managed to give a fair account of the movement which Fergusson travestied, and to furnish it with suitable illustrations. The reader of Fergusson's book who reads it for the first time in this edition is much to be congratulated if he be a reader who takes his opinions from his author without question ; and upon these two subjects Fergusson did not pursue his custom of furnishing the means for his own refutation.

RAYMOND LEE.

CHAPTER III.

FIFTEEN YEARS LATER — THE GUESTS WHICH THE STORM SENT.

"MOTHER, why do you watch me so?"

"Because I love you, Raymond. Oh, never mind the weather; come here to me, sit on this stool and put your head on my lap."

Mrs. Lee said this, and when her son was seated beside her, she ran her fingers caressingly through his locks.

"God bless thee, my boy."

The mother filled those words with every tone of all within the harmony of love. Naturally affectionate and sympathetic though Raymond Lee was, the deeper notes of this music were inaudible to him. Very few in youth have ears attuned to it. The capacity to appreciate it comes to us later in life — with some other things. Then, alas, too often we can awaken but the echo of the music. Raymond, years afterwards, in thinking of these early days, recalled the old fable which tells of the bad fairy who endeavored to turn to clay the wealth in a certain great king's palace, and succeeded with the crown, which was his ambition; the sceptre, which was his power; the diamond, which was his fame; the opal with its iridescent depths, which was his hopes and dreams; all were changed to dross save a certain little golden casket wherein was his mother's love.

"Mother?"

"What is it, Raymond?"

"Won't you let me have that boat?"

"Don't ask me, Raymond; I fear...."

"But I'll be careful, mother. I'll tell you what I'll do: I'll never go out in it unless you say yes."

"Even then, Raymond, something might happen. Oh that gust, how it shook the house; this is an awful storm."

"But, mother, nothing can happen; besides, Joe Slagg says...."

"What is it Joe Slagg says?"

"He says (this with much hesitation) that I am a woman's boy, and the sea would make a man of me. He says the sea does not love a weakling or a coward."

"I wish Mr. Slagg would mind his own business; he's a fool."

A pause followed. Mother and son were busy with their thoughts which with both moved in the same direction.

"Am I a woman's boy, mother?"

"You are your mother's boy, Raymond."

"Is there any difference?"

"Raymond, dear, don't; you pain me. Do you want to grieve your poor old mother? There, there now, I knew it. Play me something—sing to me."

* * * * * *

"Heigh-ho, the lowering skies,
The black clouds over the sea,
And by and by the storm will arise,
Bringing a message to me."

"Oh, my boy, God has given you a heavenly voice."

"Why do you cry, mother?"

"Because it is sweet to do so. You touch something hidden."

"What is it, mother?"

No answer was given to this question.

"Mother, when is Mr. Fargus coming again. It is nearly three months since he was here."

"You love him, don't you, Raymond? He is a good man."

"Oh, yes, he is kind to me, but I like him to come because you feed him as though he was an old red-faced cardinal—that's what Kate says—and I go halves with him."

"Gourmand, come here."

"In a minute; let me watch the clouds. Whew, look how the wind is blowing them. The sea must be fine. Mother?"

"What, dear?"

"Would you mind if I ran down to the beach, only for a minute or two? I won't be long."

"Restless one, I believe the sea has charmed you. Go if you want to, but don't be long. Wrap up."

The last words were spoken to the air. The mother watched her son running down the street bending against the wind.

"Oh," she sighed, "can I keep thee, Raymond, my boy."

She resumed her work. The cotton took form from the point of her crochet needle, but I doubt if an answer to her question shaped itself so easily.

The hurricane which Raymond faced when he left the cottage even yet is not quite forgotten on the South coast. Those who remember it always speak of it as the "Great Storm." The wind blew in mighty gusts which smote the earth. Great banks of gray clouds scurried across the heavens. The rain fell in torrents. It was a day in which the strong soul delights. The fury of the storm was intoxicating; wild emotions stirred the pulse to an unwonted measure, and something of the passion of the mighty tumult passed into the veins and forced to the lips a cry of wild exultation. Raymond felt these sensations when he stood on the cliff-top, and steadying himself against a part of the old ruins, looked seaward. The evening light was fading. The gray waves and the gray clouds mingled, mingled in mist and foam, and were scarcely distinguishable one from the other. Suddenly a very faint reddish light flashed far out from land. So faint was it that Raymond might have mistrusted his eyes had not the roar of the storm a second or two later taken, for an instant, a sharper accent. Immediately afterwards he saw what was like a star shine forth for a moment and then go out. Raymond trembled at the sight. So great was his excitement that he tried to utter a cry, but the roar of the storm stifled it in his very teeth.

He started at a run for the village. On his way he was blown down twice. To shorten the road he scrambled over walls and made through the gardens of some of the cottages, and thence down the steep winding cliff-road to the coast-guards' station on the beach. He hammered the low door of the building with his fists, and it was flung open by a man in a "sou'wester." It was Joe Marley.

"Oh, Joe, there's a vessel sinking off the Monastery Cliff."

"Off the Monastery Cliff, Raymond!" exclaimed the man.

"I was up there and heard a gun."

Accompanied by three other men and Raymond, Joe Marley hurried out of the station—up to within a few feet of which the great waves were dashing—and shading his eyes with his hand, as though a better vision were gained thereby, peered seaward. The sharpest eye could then distinguish nothing but the turbulent confusion of the sea and the sky. For the space of some minutes the men listened intently.

"Up the cliff, boys," cried Joe Marley. "Two of you get out the gun. We'll see if they hear us."

Marley, with Raymond and another coast-guard at his side, stationed himself at the top of the cliff. Word had passed through the village that a ship was foundering off the coast, and a small crowd soon collected around the three.

"Where is she?" asked several voices.

"Off there," cried Raymond, pointing to where he had seen the light; but nothing was visible there then. After a minute or two Tom Burroughs asked, "Are you sure you heard a gun?"

"Aye, aye," said several, as if approving of the doubt.

"I am sure," said Raymond positively, "and I saw a rocket too."

"You did, eh?" said Joe Slagg, nodding his head. "I wouldn't give much for her chances, then. It was a night like this when the Polly went down, nigh on twenty years ago."

"Oh," said a bystander, blowing the rain from his beard, "this is worse than that. We got the boat out then, but yer couldn't do it to-night."

The boom of the gun sounded from the beach below, but how faintly!

"They won't hear that," said Marley shortly, shaking his head. "The wind will kill it."

The words were barely uttered when the men at the station sent up a rocket. It rose scarcely a hundred feet, and fell without breaking. In the next lull in the storm another rocket went up, and this sent a golden shower of light high over the land. The little crowd cheered, and then every eye and ear were strained to catch an answer from the sea. The minutes passed, and none came.

"You are mistaken, my boy," said Joe Marley quietly, "or she's gone down."

"Then down she's gone," said Raymond, "for I've made no mistake, John. Hark! There's a gun."

Every soul thrilled at the sound.

"There's another," cried half a dozen voices, as another and more distinct report was heard.

"To the boat, boys," cried Marley.

The crowd of men, women and children hurried down the cliff to the station. The life-boat was speedily run out on its carriage to the water's edge where the sea foam washed around it.

"It's no use," said an old gray-bearded man approaching Marley who with the rest of the boat's crew was putting on a cork jacket. "You can't do it, Joe."

"John, let me go with you?" Raymond asked, seizing the seaman's hand.

"You, Raymond!" said Marley, putting the boy aside. "No, no, this is no trip for you. Out with her boys."

"You'll take their lives, Joe," said the gray-bearded man, "if you launch that boat. I don't think you can, though."

But the boat was launched. Joe Marley stood in the stern, his body thrown forward, his weight upon the tiller-ropes. As a great sea rolled in he cried to those on shore and the life-boat slid off the carriage into the wave as it receded and was swept out to the black seething water beyond. An incoming wave broke completely over it, but the power of a dozen strong arms was on the oars. For a second the white hull was visible, wavering in the billows.

Another instant and it had passed from sight into the darkness.

"God is with them," said the gray-bearded man, "or they never could have done it."

The fisher folk were still peering into the darkness seaward after the life-boat, when Mrs. Lee, with a black shawl tied about her head, pushed in among them. Zipcy accompanied her.

"Where is Raymond? Where is my boy?" she cried.

"He was here a minute or two ago," said Tom Burroughs, looking around. "He wanted to go in the boat, but Marley wouldn't let him. He told him to go home."

"But he did not," cried Mrs. Lee, greatly alarmed and on the point of tears. "He is not in the village."

"Pr'aps he's on the Monastery Cliff," suggested one of the coast-guards, "where he was when he heard the gun. It was him as brought us the news."

"Yes, yes," said Mrs. Lee eagerly. "Will some one go and see for me? Oh, Raymond, Raymond, where are you?"

"I'll go, ma'am," said a tall boy in the crowd.

"Who's that?" asked Mrs. Lee, for it was too dark to distinguish faces.

"Will Perry, ma'am," said the lad.

"Good boy," said Mrs. Lee, "be quick. Hurry, hurry. I'll pay you well. Oh, Mr. Burroughs," she cried, as the lad set out, "could—could—do you think anything could have happened to Raymond? Oh, those waves."

"No, no, ma'am, no danger of that," said the fisherman.

"It may be," said the gray-bearded man slowly, "he's in the boat."

"How could he be there?" said Mrs. Lee, fighting the suggestion. "Surely, surely, you wouldn't let him go?"

"No, ma'am, of course not," said the gray-bearded man, apologetically, "but I was thinking, you know, may be he slipped in. He wanted to go so."

A few minutes later the boy who had gone to the South Cliff returned and reported that although he had searched everywhere and called aloud, he could not discover any one. Mrs. Lee burst into tears and wailed in a piteous

way. Zipcy and the fishermen tried to reassure her in an awkward but not unsympathetic way.

"Don't take on so, ma'am," said the gray-bearded man. "Mark my word he's in the boat. I feel it in my bones he's in the boat. Don't you think you had better get out of the damp. Come to the station and wait. The boat can't be back for some time yet."

"Will it come back? will it come back?" cried Mrs. Lee. She knelt down on the beach and cried aloud: "Oh, Christ, give me back my boy." She fell forward prone upon her face, sobbing piteously.

"Come ma'am, come, said the gray-bearded man softly, as he lifted her to her feet. "Here, Burroughs, give a hand; take her other arm." And the two men almost carried the woman to the coast-guards' station. There they placed her on a bench before the fire, where she sat, in a half-comatose condition, sobbing. Every voice or new sound outside made her start and listen.

Two hours passed, solemn, anxious hours for the watchers ashore, then doubt, dark as the storm itself, filled every heart. Would the life-boat return? Fear created fantasies, and amid the howling of the wind and the sea many thought they heard shrill cries from afar out on the waters. Another hour had nearly passed when a cry, this time distinctly audible, rose from the sea, and in another minute the life-boat was seen rushing shoreward on the white crest of an enormous wave which carried it high upon the beach. As the keel grounded the fisher-folk sent up a mighty cheer. Mrs. Lee heard it, and without shawl or bonnet flew along the strand.

"Where is my boy," she cried, seizing Joe Marley, who had bounded ashore, followed by the crew, to assist in hauling the boat out of reach of the waves.

"Safe," was the reply given in a husky voice, for Joe Marley was putting forth the last effort of his strength. "He's astern with a little gal."

"Thank God," exclaimed Mrs. Lee.

"All of us should say that," said Joe Marley. "Give a hand bo...."

The strong man was completely exhausted. He tottered and fell to the ground.

Tom Burroughs and half-a-dozen others scrambled into the life-boat to help out the rescued. The first to disembark were three seamen, whose blanched and haggard faces told of the fearful struggle they had undergone. Afterwards two women were carried out, and Tom Burroughs followed, bearing a young girl who seemed to have fallen asleep in his arms. Then Raymond Lee dropped over the side of the boat. Mrs. Lee uttered a cry and ran to him.

"Oh, Raymond, Raymond," she sobbed, with her arms around him as she covered his face with kisses.

"There, mother, there; I'm all right. Take care, I am wetting you through. Oh, that was a sail! I wonder where the fat man in the dressing gown is. He's got a nigger with him who's nearly turned white. His daughter fell into the water."

"Oh, Raymond, whose daughter?"

"The dressing-gown man's. She isn't drowned. Marley fished here out. There she is. Tom Burroughs has got her. Oh, there's the fat man, mother. Look at him, look at him. He's climbing over the wrong side of the boat."

"Come home, Raymond, you are excited—and, my boy, you are drenched to the skin."

"That's nothing. Just a minute, mother, let me give the fat man a hand. Hie up there, the ladder's on the other side."

"Damn the ladder! Ugh! my feet are too short."

"Don't go back. Step on my shoulders. In the lexicon of youth, etc."

"You can't hold me."

"Never mind. I can break your fall. There. Easy—easy. That's better than breaking your neck, sir, isn't it?"

"Whoever you are, my lad, I thank you. Where is my daughter? Have you seen her?"

"That's she, isn't it? lying on the beach over by that man."

"Yes, yes.... My darling, you are better, eh? Thank God. Oh, how cold your hands are. Give them both to me. Where are we, my good fellow? Where's the town? How can I get to the hotel?"

"There's only the 'pub,' sir," said a sailor, "the Ship."

The name was ominous. The fat man shivered.

"You had better come home with us, sir," said Raymond, "eh, mother?"

"Certainly, dear, certainly. I shall be very glad in a time like this if the gentleman and his daughter...."

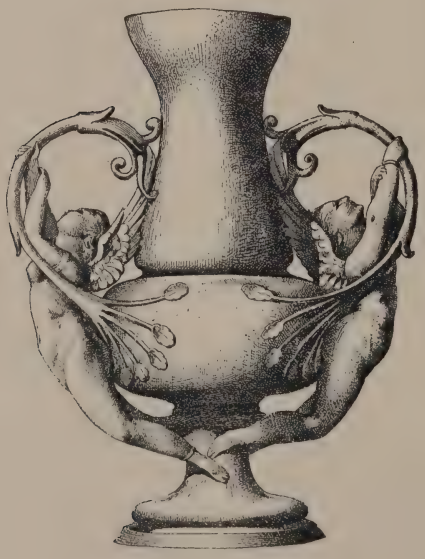
The fat man made a low obeisance.

"Madam, you are very kind. My helplessness must be my excuse for any intrusion."

"Come on, sir," cried Raymond, setting out. "If you will go ahead with mother Tom and I will carry Miss...."

"Pilgrim," said the gentleman.

To be continued.





INTERIOR VIEW OF DESIGN SUBMITTED FOR CATHEDRAL OF ST. JOHN THE DIVINE,
New York City. Wm. A. Potter and R. H. Robertson, Architects.

The

Architectural Record.

VOL. I. JANUARY-MARCH, 1892. No. 3.

ARCHITECTURAL ABERRATIONS.*

No. 2.—THE RECORD BUILDING, PHILADELPHIA.

PHILADELPHIA, in respect of its commercial architecture, is undoubtedly the most backward and provincial of American cities. Of course, in so great a square mileage of brick and mortar, there must be here and there an embodiment of an architectural idea, which may be studied with interest, if not always with pleasure, and in a town of a million of people there must be some educated architects among the mass of "artchitects," and some evidence of their education and of their knowledge of and conformity to the standards that are acknowledged by educated architects elsewhere. "Evidences of design" in the building of Philadelphia may be collected by a hard-working teleologist. It remains true that one of the oldest and richest and most American of American towns is, in its commercial building at least, the crudest and most violent, that Philadelphia is architecturally far more Western than the West, and that Chestnut street has pretentious edifices that would be revolting to the inhabitants of Omaha, and that their authors would be ashamed or afraid to erect in Kansas City.

We are not speaking, it is to be noted, of the work of the speculative builder. That is about as bad in one town as in another. Neither are we speaking of the minority of studied designs which Philadelphia possesses, and which are the more admirable because their authors have taken intelligent pains with them without any encouragement from public appreciation. In truth it is evident from the look of Philadelphia that there is no constraint upon the architects either from the professional opinion, which elsewhere keeps designers out of the maddest excesses, or from a lay opinion that betokens an interest in the subject that, though ignorant, is willing to be enlightened. What the aspect of commercial Philadelphia does indicate is a complete architectural apathy on the part of the public and a settled determination on the part of the architects to break in upon that apathy at any cost. One derives from the title of "The Quaker City" a sense of demureness and sedateness and dull propriety which is exactly antithetical to the

* We are making a collection of "Aberrations," and shall present one to our readers in each number of THE ARCHITECTURAL RECORD.

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rampant loudness that does in fact characterize its conspicuous building. What one would expect to be the tamest of American towns is by far the wildest. The one object that the designers of its commercial palaces evidently have in view is to make sure that their respective buildings shall be noticed, and Chestnut street accordingly recalls that comparison of Carlyle's of a village society to "an Egyptian pitcher of tamed vipers, each struggling to get his head above the others."

To select any particular viper as the ugliest and most offensive, and therefore the most typical of this tendency, is to intimate that it has succeeded in attaining a preëminent conspicuousness. That would be invidious if not unjust as to the other vipers that are wriggling into light with an equally frantic activity. It might even be taken as a compliment by the selected serpent. We hasten to say, therefore, that it is impossible to particularize any single structure as supremely characteristic of the imbroglio of Chestnut street, as impossible as it would be to represent the Laocoön or a scrimmage at football by picking out one contorted leg.

The *Record* Building, herewith illustrated, is not exactly a specimen of the commercial architecture of Philadelphia, for a peculiarity of that architecture is that as it is not a species, it has no specimens. What the architects of the commercial buildings try for being conspicuousness, they try for it by being various, and their success is in proportion to the degree of difference that they attain, not only from themselves and each other, but incidentally from the principles of the art of architecture. It is a pathological collection, an assortment of anomalies, that the business quarter presents. It will be agreed, however, that the *Record* Building is of a weird and wondrous ugliness, and also that from the Philadelphia point of view it is highly successful since it is absolutely certain of being noticed. It is also commercial—there is no doubt about that. The piers are thinned down to the lowest requirements of stability, and the bands between the stories apparently to the actual depth of the floors, so that the building does not give the impression of a building, but of a sash frame in masonry. This is a common disposition. It is not favorable to architecture, but if the designer skillfully makes the most of such masses as are left him, and attains an effective proportioning of his stories, the result may be at least an inoffensive building, and may possess the repose that is the first essential of any work of art. In fact the danger of the arrangement lies rather in the direction of weakness than of restlessness. Yet the designer of this edifice has continued to make his building as uneasy and restless, with the repetition of a simple rectangular opening, as if he had changed the motive at every story. It is necessary to an architectural composition that either the vertical or the horizontal lines should predominate. In the present sash-frame neither predominate, for neither are at all developed. The one projecting member that is repeated throughout the front is the moulded block that seems to have been suggested by the offset of a Gothic buttress. It has no meaning here, because the plane of the pier to which it is applied is the same from bottom to top, and the projection has the effect not of a modelling of the pier, but of a piece of foreign material glued on to its face. It is glued on at the intersection of the pier with the band that forms the floor-line, and it thus interrupts the pier at every story and the band at every bay, so as to leave no continuous line, vertical or horizontal. The device would be ingenious if it were a means to an architectural end. The end it attains is to cut up the building at the corners of every window, or pair of windows, and to render what might be a respectable and unpretentious sash-frame, an uneasy front that nobody can respect. How great an improvement it would be in the look of the building if all these absurd projections could be chipped down to the face of the wall! It is true this excision would remove all the architecture from the fronts, between the basement and the upper story, excepting the lines cut at the top and bottom of the piers in each story, which are equally ridiculous and



Philadelphia, Pa. THE RECORD BUILDING,

unmeaning, though less offensive; and excepting also the treatment of the lintels, which by some inadvertence has a meaning, and is rather good, though it becomes tiresome by repetition.

The basement has some architecture in the application against the piers of little pilasters, which might be supposed to strengthen the piers, if they were not stopped on corbels at the bottom, so as to show that they are quite useless. The banded columns at the entrance constitute a highly Philadelphian feature, and are as bad as bad can be. Comparatively delicate shafts are imposed on ugly and stilted bases and rudely interrupted by shapeless masses of stone projected from the walls and carry other shapeless masses, which carry conical masses retreating against the pier to assure us that the whole feature has no meaning at all but is pure architecture.

The top is the most grievous of all. Nothing could be more wild and Western than the cornice and its cresting, with the gross lumpy pinnacles into which the piers are produced, unless it be the treatment of the tower. To put a very solid and massive tower upon a very thin and weak sash-frame, and then to whittle down its angle piers at the bottom, so as to support them upon slender shafts, banded into lumpy projections, is a nightmare that might cross the imagination of an erratic architect anywhere, but it is only in Philadelphia that he would attempt to body it forth in actual stone. The decoration of this crowning feature seems to have been suggested by examples of Hindoo architecture, and it is very terrible.

This edifice is even more revolting by comparison with its neighbors, which appear in the illustration, than if it were isolated. The old front at the left is a relic of the time when Philadelphia was properly called the Quaker City. It is thin and weak and dull, but it is decorous, and it rises into distinction alongside of its bustling and noisy neighbor. The Renaissance warehouse on the right would not be very noticeable elsewhere, but on Chestnut street it seems, by contrast, not merely a gentlemanlike, but an artistic performance, breathing the spirit of grace and repose. It is not this respectable edifice, however, but the awful *Record* Building that is typical of the contemporaneous commercial building of Philadelphia.





THE BATTLE OF THE STYLES.

IT is generally admitted that the decorative and architectonic forms in which the conceptions of modern architecture are expressed are the weakest side of its development. They have exposed it to the reproach of insincerity and untruthfulness, of lack of invention and of fundamental inconsistency between its construction and decoration. It has developed no architectural language of its own, but has used the dead languages of extinct styles, copying incessantly where it should have invented. As a result we behold in modern work a bewildering variety of styles, whose employment in most cases seems to have been determined by no more serious consideration than the architect's personal predilection, and the changing fads or fashions of the day. There has been within forty years a veritable revolution in building methods and processes and materials, but these changes seem to have had little influence in developing any truly modern and characteristic system of constructive and decorative forms.

Fergusson, writing of England in 1873, uses these words: "Architecture never was in so false a position in this country since the Reformation as it is at this moment, nor practiced on such entirely mistaken principles."* "Whatever the other merits of modern buildings may be, the element of truthfulness is altogether wanting."* And of France, where more than anywhere else there is at least the semblance of a modern style, Viollet-le-Duc observes in his "Discourses,"† that "instead of availing ourselves of the immense resources furnished by modern industry . . . to produce a new style of architecture, which shall be the natural expression of our era and our civilization, we straiten and limit our means under an architectural system theorized out of the past and conventionalized by academic usage." Our modern American architecture has been criticised with equal severity by more than one writer of note, yet still around us rise Romanesque and Renaissance designs side by side, and still the battle of the styles continues. While we implore the combatants to listen to reason (*our* reason), they keep right on, Romanesque, Byzantine, Gothic, Cinque Cento and Louis Quinze, all striving for the mastery. The men who create, who feel and handle the forces which the critic and philosopher only see; who know the limitations of circumstance and conditions and struggle therewith, give little heed to the philosopher, to the man who analyzes and can only proceed on general principles and abstractions. Mankind is not al-

* "History of Modern Architecture," 2d ed., p. 566.

* "History of Modern Architecture," 2d ed. Introduction, p. 2.

† "Discourses on Architecture," Boston ed., p. 405.



AUDITORIUM HOTEL, STUDEBAKER BUILDING AND FINE ARTS ACADEMY,

Chicago, Ills.

ways right nor the critics always wrong, but we must guard against the illusions of a false perspective. On the battle-field there seems to be only "confusion worse confounded," but from the mountain-height one may discern a plan of campaign, a system governing the apparent chaos of movements, a final result planned from the beginning and at last triumphantly achieved. Perchance some future age may perceive in the architectural tumult about us germs of a coming cosmos of beauty and strength all invisible to our nearer view, and so judge otherwise than we.

If we divide the general question of styles in modern architecture into several inquiries, their separate consideration may throw some light on the correctness or erroneousness of the common assumptions that modern architecture, in its outward expression, is wholly untruthful, and that the chaos of styles about us is a wholly unmitigated evil. We may put these inquiries into forms like these:

1. Why have we no styles of our own as previous ages have had?

2. Can a historic style be truthfully and logically employed in modern designs, and if so, in what manner?

3. Can several historic styles be concurrently employed without inconsistency?

4. Is there hope of developing a distinct system of architectural forms appropriate to our age and civilization?

I. To answer the first inquiry at length would involve too long and detailed a recapitulation of the course of modern architectural history from the Middle Ages down. We can only notice its most salient facts.

The foundations of modern civilization were laid in the fifteenth century. The revival of classic studies in Italy was only one symptom of the revolution that was taking place in human life and thought. As the Middle Ages represent the negation of individualism under supreme authority—the absorption of the unit in the mass—so the Renaissance, if it meant anything, was the breaking up of the mass and the emergence of the unit. The individual consciousness asserted itself; the right of every man to question, doubt, investigate, acquire for himself. Out of this spirit have grown modern conceptions of liberty, modern Protestantism, science, invention and discovery, popular education, modern democracy, and the industrial and commercial system of our day—in short, the nineteenth century.

Now Gothic art, developing throughout Western Europe as a mighty system, carried out with varying details, but under the pressure of universal principles of development, was only possible under a universal church, and by the absorption of the unit in the mass. As was pointed out in a previous article*, the efforts of architects all over Europe were concentrated for over three hundred years upon a single architectural problem, and under the influence of a universal church which ignored the bounds of country and differences of race. When the Renaissance dawned, the architectural system thus developed had culminated and begun a career of decline, marked by the quest for extravagant effects of clever construction and ostentatious decoration. It was wholly unsuited to the tastes and requirements of the new civilization. The new era was worldly in its tastes and aspirations; rising in revolt against the mediæval asceticism, which would suppress beauty and joy as legitimate objects of pursuit, it found in the art and literature of classic times a spirit more akin to its own. The poetry of classic mythology, the splendid material environments of Roman civilization, the Greek worship of beauty, appealed powerfully to the neo-paganism of those times. That they appropriated to their own use every tangible vestige of classic art was the inevitable consequence of this spirit. They had no Ruskin and no Fergusson to tell them they were setting forth on a false career, and to indoctrinate them with a system of æsthetic morals which they could not have comprehended had they listened to its preachment. Indeed, classic art was the only mine open to them to work. They could not build upon the

*"The Difficulties of Modern Architecture," in No. 2 of THE ARCHITECTURAL RECORD.

Gothic, so foreign to their tastes and already in its decrepitude. They could not invent a new architecture out of whole cloth; the thing is impossible. They could not revert to Greek forms, of which they were absolutely ignorant. They could not but use the details of Roman art with which they were surrounded, and which they had never discarded, even in the fullest tide of their mediæval art. The new style of the Renaissance was nevertheless not a copying, and however much the men of the time may have imagined they were reproducing Roman architecture (a statement often made, but certainly open to doubt) they were really adapting classic details freely to their own uses, and with a grace and a taste betokening a truly artistic spirit. The path on which they set out was not only the one path alone open to them, it was also the natural and logical path to follow.

The decline of the art, out of which the modern chaos has grown, began when the Roman orders in their entirety, as a completely formulated system, came to be looked upon as the only adequate medium for architectural expression. When the wayward genius of Michael Angelo had furthermore set the example of disregarding the wise limits of scale in their use, the rapidly-degenerating taste of the succeeding period forsook the restraints of logic and common sense, and abandoned itself to the extravagances of the Jesuit and Roccoco styles. A reaction was inevitable; but the architects of the eighteenth century, instead of going back to the parting of the roads—to the architecture of the first half of the sixteenth century—sought perfection in the imitation of the works of antiquity, a radically different thing from the adaptation of their details to modern uses. Such buildings as the façades of St. John Lateran and St. Peter's in Rome, and the Madeleine and Panthéon in Paris, were the result. For a century, more or less, European architecture was occupied with a series of efforts based on the same fundamental blunder—the restoration in modern times of the architecture of a by-gone age. Every designer sought to do as exactly as possible what he supposed an architect of the period he was imitating would have done with the same programme and under the same conditions. The monumental absurdity of imagining a classic Roman architect, or a contemporary of Phidias, or a mediæval master-of-works, as occupied with such a programme under such conditions, never troubled his mind. His aim was accomplished if the details he used could each claim an exact historic precedent, so that (if properly shattered and discolored) they might be mistaken for genuine products of the age they pretended to belong to, no matter how incongruous with the spirit and methods of that age might be the plan and construction of the building.

This absurdity lies at the base of all the "revivals"—the Greek, the Roman and the Gothic—whether in England, France or Germany, and was fatal to them all. The talent, devotion and perseverance of their adherents produced many beautiful works, it is true. They contributed much to the adornment of modern cities; they stimulated historic study and the preservation of ancient monuments, and gave to the profession a new tone of seriousness and scholarliness, but they could not put the breath of life into dead systems.

Moreover their labors were prosecuted in a period of rampant philistinism. The first half of this century was well-nigh dead to the claims of true art. Commerce, politics, war and mechanical invention seemed to have stifled all considerations of loveliness in life and art. Engineering monopolized whatever real progress was being made in building. Metal construction was coming into general use for bridges and for structures with large roofs, such as railroad stations and exhibition buildings, the most characteristic products of the constructive skill of the time. These works were intrusted to engineers; the architects were so preoccupied with their mistaken efforts to resuscitate historic styles that they wholly failed to discover the possibilities of the new material, and scornfully abandoned it to the mathematicians and



FINE ARTS ACADEMY,

Chicago, Ills.

iron-founders. As a result, it was handled without grace or feeling, and is only in our own day slowly gaining recognition as a possible means to artistic ends.

The same things were largely true of architecture in our own land. The one phase of its history which we can claim as in any sense national was the Colonial style, which was a free adaptation to our own uses, especially to work in wood, of the Queen Anne and Adamsite details which our builders had inherited from England. But it was swamped by the wave of the imported Greek revival, with its mistaken taste. This in its turn gave way to the pseudo-Gothic, which has left so many atrocious mementos of its passage across the continent. The Gothic revival here lacked the inspiration of the monuments which in the Old World were the objects of the architect's ceaseless study. Trained practitioners were few, and technical skill among our artisans, especially in carving and decoration, was deplorably lacking. Still more disastrous was the low estate of public taste and information in art matters, and the general toleration of the most wretched shams. However open to criticism such designs as Trinity, St. George's (Stuyvesant square), and Grace Church, in New York City, may be in our eyes, they were a veritable oasis in the wilderness of bad Gothic of their day.

Meanwhile the French had been coming nearer to a true reform in architecture than any other people. Starting with the elements of classic design, they had developed out of them a more or less rational and consistent system of treatment, in which they avoided on the one hand the academic stiffness of the Vignolesque school and on the other the extravagances of the Roccoco. It had, and still retains, at least the merit of modernness and consistency, and is often used in such a manner as to acquit it of the reproach sometimes brought against it, of artificiality and want of relation to the system of construction employed. The brilliant incursion of the Néo-Grec school of Duc, Duban and Labrouste, in the second third of the century, infused into it a certain grace and freedom which it has never since wholly lost, and it has exerted a powerful influence upon the more recent architecture of Germany, and especially of Austria. The École des Beaux-Arts has done much to unify the style and to give a thorough training to its practitioners and, in spite of the officialism and restraint of free development alleged against it — certainly with far less justification to-day than when first advanced by Viollet-le-Duc — it has proved the value of its instruction, independently of the special classicism it is supposed to inculcate, by such free and iconoclastic work as that of H. H. Richardson, who was trained in its *ateliers*, and by such buildings in Paris itself as the Trocadero and the metallic structures of the late Exposition. In these last we see at least partially realized the early promise of the Halles Centrales of Baltard. Both in their planning and in their decorative treatment of constructive forms they display remarkable taste and inventiveness, which we are as yet far from equaling in this country, in our treatment of constructive iron-work.

The influence of the French school on American architecture began in the persons of R. M. Hunt and H. H. Richardson, the pioneers of the American colony of architectural students in Paris. This influence was strongly stimulated by the Centennial Exposition of 1876, which started a veritable renaissance in American art. Undoubtedly the school of architecture of the Massachusetts Institute of Technology had done much to prepare the way for this; and it has ever since maintained a high standard of scholarship and efficiency, and in conjunction with the other strong schools which have been established since that date has contributed largely to swell the number of thoroughly educated and enthusiastic men in the ranks of the profession, even in distant Western and Southern regions.

These architects of our land and day come to their work with no traditions but those of the schools or offices where they have been trained; a mantle



THE "ROOKERY" BUILDING,

Chicago, Ills. Burnham & Root, Architects.

loosely worn, and flung away on the first occasion. Historical examples fail them as exact precedents for the new and ever-changing problems that meet them. On the other hand, invention "out of whole cloth" is disastrous to good design. The most horrible compositions that disfigure our streets, the most *outré*, barbarous and illogical hotch-potches of mistaken design to be found in our cities, are quite as apt to be the work of intelligent men of fair general education, who are nevertheless possessed of the idea that "absolute originality" is the chiefest of architectural virtues, to be attained only by absolutely disregarding all historical precedent, as they are to be the productions of illiterate and philistine builders. The total absence in the historic styles of anything exactly corresponding to the varied types of building which our ever-changing conditions are constantly calling into being, while it has operated to prevent any mechanical copying or wholesale importation of those styles in recent years, has also retarded the convergence of American practice into anything like a national uniformity or type of character, except perhaps in the one domain of domestic architecture. Each designer makes use of the style which he imagines to best befit his special problem, or whose "grammar" he has most thoroughly mastered; as a rule, he uses it freely, adapting and modifying not always with the most perfect logic, but generally according to his lights. For this diversity of practice to crystallize into unity requires time. Mixture and fusion must precede the emergence of the crystal; whether these processes have begun among us is a part of the fourth of our questions; but even if they have, there has not yet been time for their completion. Their culmination is opposed by many forces; the constant change in the problems presented, in their special requirements and in the resources for their solution; the hostility of modern engineering to art; the progressive specialization both in building industries and in the arts of design; the increasing urgency and imperiousness of purely mechanical considerations, and the ever-growing complexity of modern buildings; these things unite to promote the restlessness and variety so conspicuous in American design, and so hostile to the development of a simple, dignified and monumental architecture.

II. Before we turn the pages of history for light on our second question let us stop a moment to define our terms, and so make certain that writer and reader shall proceed on a common understanding. The distinction between *style* in the abstract and *a style* in the concrete is fundamental to our discussion. Without entering into any lengthy illustration like those in the sixth of Viollet-le-Duc's "Discourses" we may express the distinction as that between a quality and a historic fact. *Style* is character, unity of effect proceeding from some dominant quality in the design. *A style*, on the other hand, is a particular manner of designing peculiar to a race, age or person; an "understood way of working" (to use Mr. Schuyler's felicitous phrase), resulting usually in a recognized system of forms and combinations of detail. A given style may possess very little *style*; and, again, there may be excellent style in a work whose particular style it would be hard to designate.

Our second question then resolves itself into this: Can the "understood way of working" of a past age, its peculiar system of architectural forms, be rationally applied to modern purposes? The affirmative answer seems obvious, whenever the style lends itself to such uses. Indeed, there is no alternative but to use the forms of a historic style in modern architecture, unless we resort to invention pure and simple. But all the invention in the world will never produce a new style, and it is a mournful fact that whenever invention has built otherwise than upon the foundation of some already-established system of form, it has only resulted in idiosyncrasies and eccentricities of the worst kind. The great styles of historic architecture have always grown up by gradual and minute accretions, suppressions and modifications of existing forms. We, who have no existing sys-

tem of form, and can find none in the immediate past as the starting-point for any reform in modern design, can therefore do no otherwise than resort to the remoter past. To forbid this, as some theorists would, upon any fine-spun theory of the "inherent untruth of working in the fashion of an extinct civilization," is a fantastic refinement of an imaginary system of morals. The fallacy in the "revivals" of the last hundred years lay not in the fact that the forms they used belonged to a more or less remote past, but in their irrational use of those forms. Absolute reproduction of the old combinations was essayed, instead of a free adaptation of their elements to each special programme; and thus planning and construction were subordinated to the style instead of controlling it. The Victorian Gothic was nearer to truth and reason than the earlier revivals in its freer adaptation of means to ends. It was a legitimate, a rational effort to develop out of the mediæval architecture of England a flexible and characteristic modern style. It came to grief because it was too artificial, corresponding to no spontaneous movement of popular taste; and because the style on which it was based was intractable to modern uses. It has fared differently with the American revival of the Romanesque for the converse of the above reasons. It *has* "taken" with the people, finding a ready echo in the popular taste; and it is based upon a style which was still undeveloped when it made way for the pointed arch, and therefore had in it the seeds of vitality and the flexibility of a still immature and incomplete system.

So with the Italian Renaissance. As long as it employed only the elements of Roman architecture, it could develop them in its own fashion, adapting them freely to immediate needs; and just so long did it retain its power of growth. The early palaces, the doorways and tombs of Florence, the Palazzo del Consiglio at Verona, the beautiful arcaded court-yards of Tuscany and Lombardy, are all as un-Roman as possible, although their details are entirely based on classic models. That which sterilized Italian architecture was not the mere fact of the adoption, in the sixteenth century, of pilasters and entablatures; for pilasters and entablatures and complete "orders" figure frequently in the finest Cinque Cento design. Nor was it, even, as some have claimed, the purely decorative employment of constructive features. Not only was classic Roman architecture—surely a virile art—characterized by the purely decorative use of the orders which were constructive features in Greek art, but the Greeks themselves, in the age of Phidias, had never abandoned their mutules, triglyphs and guttæ, which were purely decorative survivals from an earlier system of construction. Decorative shafts, balustrades and gables are among the most striking features of fine Gothic work; and, indeed, there has never been a highly-developed phase of art in which the same phenomenon has not been repeated. What caused ossification of Italian architecture was the adoption *en bloc* of the whole Roman system of design treated as a formula, or canon, any departure from which was considered an impropriety. Thus accepted, the style could not be rationalized nor assimilated to the constructive methods or special requirements of the age, and the Roccoco was simply an effort to escape the stiffness and barenness that ensued. Admirable as are the earlier productions of the Purist school of Palladio and Vignola, they inaugurated a false principle, whose disastrous consequences we can avoid only by heeding their plain warning.

We are in more senses than one the heirs of the ages. The monuments of historic art of all lands and periods we may possess if we will; and travel, description, drawing, printing and photography have placed them all within our reach. Truly unhappy are we if we may not use the inestimable treasures with which modern science and the patient erudition of centuries have enriched us! All other ages have borrowed from their predecessors. Greek ornament may be largely traced back to the Egyptian lotus, as Mr. W. H. Goodyear has demonstrated. Roman art is based on Greek art; the Byzan-



STAIRCASE, "ROOKERY" BUILDING,

Chicago, Ills.

Burnham & Root, Architects.

tines borrowed freely from Rome, Venice from Byzantium, and Southern France from Venice. The first part of the question we have asked is therefore answered in the affirmative by all the testimony of history; it only remains to inquire what principles should control in the use of a historic style.

One or two inferences seem obvious from the historical facts we have already cited. We should avoid the example of the earlier revivalists, and on no account seek to resuscitate the whole architectural system of another age. Whatever may be the style from which we draw our inspiration, or to which we resort for suggestions of form and composition, the materials it affords must be used with careful discrimination between what is capable of adaptation to our purpose and what is not. This can only be attained by a thorough mastery of the style. If we would know what to use and what to reject, we must first know what we have to draw from. The masterpieces of the art should be studied, not only for their general composition, but for their detail. We should also familiarize ourselves with its lesser monuments, that we may learn the humbler applications of the style. Its history, its planning, its system of construction, its decoration in its general principles and in its details, the very technique of its execution, all these things are pertinent. Only by such thorough study can one penetrate the spirit and find out the animating principles of the style, and to possess one's self completely of these is essential. Half-knowledge, which is sometimes the worst kind of ignorance, is responsible for many of the architectural villainies perpetrated by well-meaning men.

It follows as a natural corollary that if the above be the true way to prepare for the use of a historic style a man cannot well succeed in mastering more than two in a lifetime. Indeed, no.

Having thus learned what we have to select from, a second principle may be laid down: that the style should be subordinated to the scheme of composition best befitting the programme; that is, the style should be a means, not an end. Its application should begin when the scheme of the design has been determined upon, not before. Thus the designer is unhampered by the artificial restraint of a formulated style while preparing his general scheme, and can determine the latter wholly by considerations of fitness, convenience and sound construction. Too often the spectacle is met with of a design whose appropriateness and convenience have been sacrificed to the fancied exigencies of a style whose historic combinations the architect did not dare to modify.

The third inference we would draw from what has gone before, is the necessity as well as the difficulty of modifying and adapting historic details for modern uses. If thorough familiarity with a style is necessary in order to select from the materials it offers, still more is it essential to any real assimilation of those materials. How skillfully and beautifully was this done by the Cinque Centists in Italy! One has only to compare their work with the classic models which inspired it to appreciate their mastery of those models and the purity of their taste. Byzantine architecture is another example of the adaptation and transformation of Roman details; how complete was the transformation and how splendid the result!

And, finally, the only safe pilot beteen the Scylla of servile imitation on the one hand and the Charybdis of an eccentric originality on the other is a thoroughly disciplined and cultured taste. Culture comes from reading and study, and from contact with what is fine and noble in art and in humanity. Discipline comes from training, self-restraint, constant practice. Perhaps the lesson of self-restraint is the one most needed in these days for our American architects. This lesson the schools of architecture endeavor to teach, while enriching the mind and training the perceptions and reasoning powers of the student. The work they have done is invaluable, and is destined to bear even richer fruit in the future.

A. D. F. Hamlin.

(TO BE CONTINUED.)



MODERN ARCHITECTURE.—A CONVERSATION.

ARCHITECT (*perturbed, entering School of Modern Architecture*).—The present condition of our art is most perplexing and unsatisfactory. What comfort, I wonder, is there here?

CLASSICIST, GOTH, ROMANESQUER *look up from their drawing boards and smile pityingly.*

ARCHÆOLOGIST (*greeting him*).—Unsatisfactory? Perplexing? We don't find it so here. My dear sir, possibly (*smiling with air of superiority*) you are not acquainted with the great work we have accomplished by strict attention to archæology. The imitative....

ARCHITECT.—But the creative....

ARCHÆOLOGIST.—The creative in archæology! My good sir, what place is there....

ARCHITECT.—Pardon me, but I speak of architecture....

ARCHÆOLOGIST.—And, pray, what is architecture but the strict application of archæology to modern requirements? If architecture is not applied archæology, what is....

ECLECTIC (*entering*).—Wouldn't a judicious blending of styles meet the case?

Chorus of dissent from CLASSICIST, GOTH *and* ROMANESQUER.

ECLECTIC.—That's the trouble with you dry-as-dusts. You have only one idea. You have no conception of how freedom invigorates a design. The Gothic, for instance, is all very well, but it needs broadening and stiffening in the joints, if I may say so. Now, I've used it with great success in an exquisite cast-iron front tenement I turned out the other day for a wealthy New Yorker, but I Romanesqued the entrance somewhat, and with the aid of a heavy modillioned cornice....

GOTH.
CLASSICIST.
ROMANESQUER. } Vandal!

ECLECTIC.—Gave quite a modern air to the thing. But in Philadelphia....

ARCHÆOLOGIST (*severely*).—Stop, sir. The name of that piebald city may not be mentioned within these precincts.

ECLECTIC.—Oh, very well, then. Out West....

WESTERN ARCHITECT (*rising from group of listeners*).—Permit me, sir. In the West, you will be interested to know, several of our brainiest architects are now engaged in the creation of an original "American Style," and what with the Chicago system of construction on one hand, and the inventive genius of our people on the other, this copying of effete forms is about ended.



Chicago, Ills. NEW GERMAN OPERA HOUSE, Adler & Sullivan, Architects.

CLASSICIST.—Effete forms, sir! Ah, how faint is your appreciation of perfection!

GOTH } (*in rapture, each looking in a different direction*).—Perfection!
ROMANESQUER }

CLASSICIST.—I maintain that hope for architecture to-day lies in the use of certain forms perfected by the Greeks. The tendency of the time to proceed without precedent is subversive of true art. If we are not grammatical....

ARCHÆOLOGIST.—I beg you, archæological.

CLASSICIST.—Have it so if you will—we are barbarous.

GOTH (*to Classicist*).—But you will admit that Greek architecture is quite undeveloped, one may say is really primitive on the constructive side.

ARCHITECT (*eagerly*).—That's it. How am I to harmonize Grecian precedent and modern requirements, which my clients insist shall be satisfied?

CLASSICIST.—Unreasonable beings; art is not for them.

ECLECTIC.—Nonsense! Harmonize! There is no need to harmonize. Our duty is to select. What do the styles exist for if not for that? I am making a design now for an eleven-story office building for a religious "daily" in what I call the "classic spirit." That's as near as you can get to antiquity. Doric on the ground floor, you know, with a broken pediment and a bull's-eye to get light; Ionic columns above in brick; then Corinthian, with a mansard roof supporting a spire-like tower surmounted by a forty-foot statue of the Freedom of the Press. Greek elegance with Gothic aspiration. I say, you *must* break away from precedent a little in these matters. Our effort should be confined to retaining the spirit.

CLASSICIST (*in horror*).—Shade of Ictinus!

ICTINUS (*appearing*).—Who called me!

CLASSICIST.—Oh, my master!

ICTINUS (*sorrowfully*).—Slave, I dreamed that I bequeathed to you a lordly kingdom; but it was only a bondage.

CLASSICIST.—But, master, I have followed in thy footsteps. Thy diameters....

ICTINUS.—Diameters! Poor fool! Think you that we live by a formula?

CLASSICIST.—Master, I have measured every column in thy masterpiece and found....

ICTINUS.—Yes, feet and inches; not our spirit.

CLASSICIST.—But how are we to work?

ICTINUS.—In thy own delight, and with reason, as we did, and as the great ones that followed us did.

CLASSICIST.—But to-day our architecture....

ICTINUS.—Your architecture! where is it? Show me some work that is really yours—that your soul delights in. Therein will be the hope for your art.

ARCHÆOLOGIST.—But are we to ignore the Past?

ICTINUS (*smiling*).—No, indeed. You cannot. Useless to try, even. But you question the Past only for its What, not for its How. You seek for the dead matter of Art, not for the living spirit, which is the same yesterday, to-day and forever.

ECLECTIC.—Permit me to suggest. You leave out of view, perhaps, our tenements and office buildings.

ICTINUS (*shuddering*).—No, great Apollo; no. Believe me I don't. They darken our life yonder. O! Ilissus, and thy quiet places still haunted by our dreams of beauty, hast thou no message for these barbarians. Ah, friend, I see you are the rash one here. You voyage restlessly among old lands; these your companions abide some here some there. Those tenements and office buildings of which you speak can—be—made—artistic—I—suppose; but they cannot inspire great art. You cannot clothe the petty things of life with majesty. The hands build greatly only where the feet tread reverently. And, really, it seems to me you modern barbarians have no great architecture because there is so little in your lives that demands—and the demand must be imperious—grand expression. Your office buildings and factories and stores are matters of percentage. Art is not. Your theatres—O shade of Æschuylus!—are also per cent affairs, where the



·The Banks Building · Front St New York · ·R·W·Gibson Architect· 18 Wall St·N·Y·

curious and idle make exchanges with

MODERN ARCHITECT.—The theatrical manager.

ICTINUS (*warmly*).—Friends, why look for a source of great art there? Your day is not favorable. Perceive that. By and by some vision may come to you as the Vision of Beauty came to us and you may follow it as we did.

GOTH.—And as my masters did that which came to them.

ICTINUS (*pointing before him*).—Look! Look! O! city of the Purple Crown, again I behold thee, and thy temples and sanctified places. Thy olive groves adorn thee, and the wide blue sea worships at thy feet. And the air is filled with the voices of thy heroes, my city, and of thy poets. The eternal gods are there, and their gift is beauty. Oh, this is life again! Feel it!

CLASSICIST.—What is he talking about?

ARCHÆOLOGIST.—Why, where is he gone to? I wanted to question him about the length of the stadium.

Harry W. Desmond.



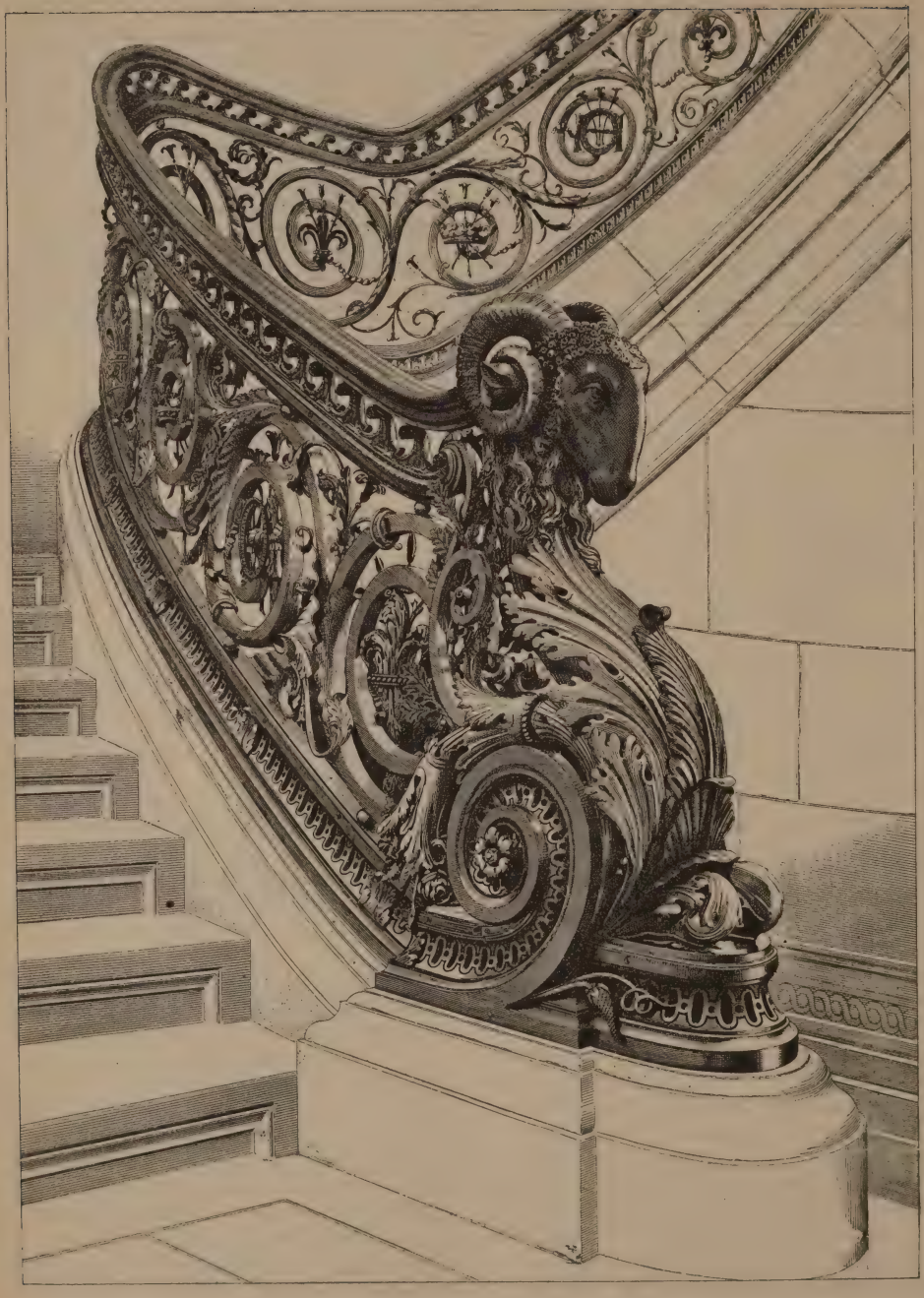
AN APPEAL TO CAESAR.

WE have recently been warned by a high authority that the law which concerns itself with the relation of client and architect expressly declares "that in all matters relating to the æsthetics of design rather than to the exigencies of construction the wish of his employer is the only rule for the architect to follow."

However defective such a rule may be—based as it is on the false assumption that the architect is primarily a constructor and not an artist—it nevertheless expresses a condition of things which exists and must be recognized. And while any improvement in our national architecture must necessarily originate and be carried on from within the profession, the rate of progress will always largely depend upon the intelligent appreciation of our efforts in that direction on the part of our clients, coupled with a sincere desire on their part to second us to the best of their ability. Yet we have been informed by another high authority that the public knows little and cares less about the canons which underlie the art of building. Evidently, then, it is high time some serious attempts were made to awaken such an interest by an appeal to that good sense of our "employers" which is not wanting when they are concerned with other matters than those relating to art. Not, indeed, that the lay mind has not been appealed to by essays in criticism in the popular magazines. The increasing frequency of these essays is an encouraging sign of the desire for instruction in such matters on the part of the reading and building public. Yet it may not be indiscreet to suggest that if these appeals have failed in some measure of the fruitful results which they have merited, it is because these arguments and discussions have too often been conducted over the heads of those to whom they were addressed.

It is all very well, for example, to enunciate as a fundamental thesis in architectural criticism the Hegelian proposition that every true mode of artistic representation must be derived from a conciliation of the objective and subjective methods of the treatment of art motives—a truth whose correct application to modern design is of vital importance—but to the average lay mind, endeavoring to discriminate regarding the design of the new boot and shoe warehouse on the neighboring corner, the gap between the proposition and its application is impassable.

It suggests itself, then, that an appeal in behalf of good design in building, proceeding from a somewhat lower, but equally sound, basis of criticism might



GRAND STAIRCASE, CHATEAU DE CHANTILLY (OISE),

France.

H. Daumet, Architect.

produce good results where discussions, pitched in a more purely philosophical tone, should fail. As a first step in this direction, then, let us clear away a popular misconception by a true definition of the architect and his functions.

The architect is primarily and essentially an artist, and only incidentally a constructor, as in this latter capacity he never employs his materials, as the engineer does, in the least masses consistent with stability. The fact that the architect is never expected to do so by his clients would indeed suggest that it is not so much a non-recognition of this principle on their part as a carelessness in applying it which hampers the work of the profession.

A more specific definition of the architect would be that he is "a modeller in building materials." That is to say, as the modeller in clay—to take a familiar though pertinent illustration—uses his simple material for the sole purpose of producing a certain predetermined expression or effect in his work, so precisely with this more complex medium, ingredients of which are stone, iron, wood, and any or all of the materials used in building, does the architect aim to produce a certain expression in his design, having, of course, the further advantage over the sculptor, who usually works in monochrome, in that he can bring to his aid color in addition to form.

Equally important is a clear conception on the part of the client of the way in which the architect does his work. Every building project presents itself to the mind of the architect as a problem whose conditions arise from three sources:

1st. The use for which the building is intended.

2d. The site.

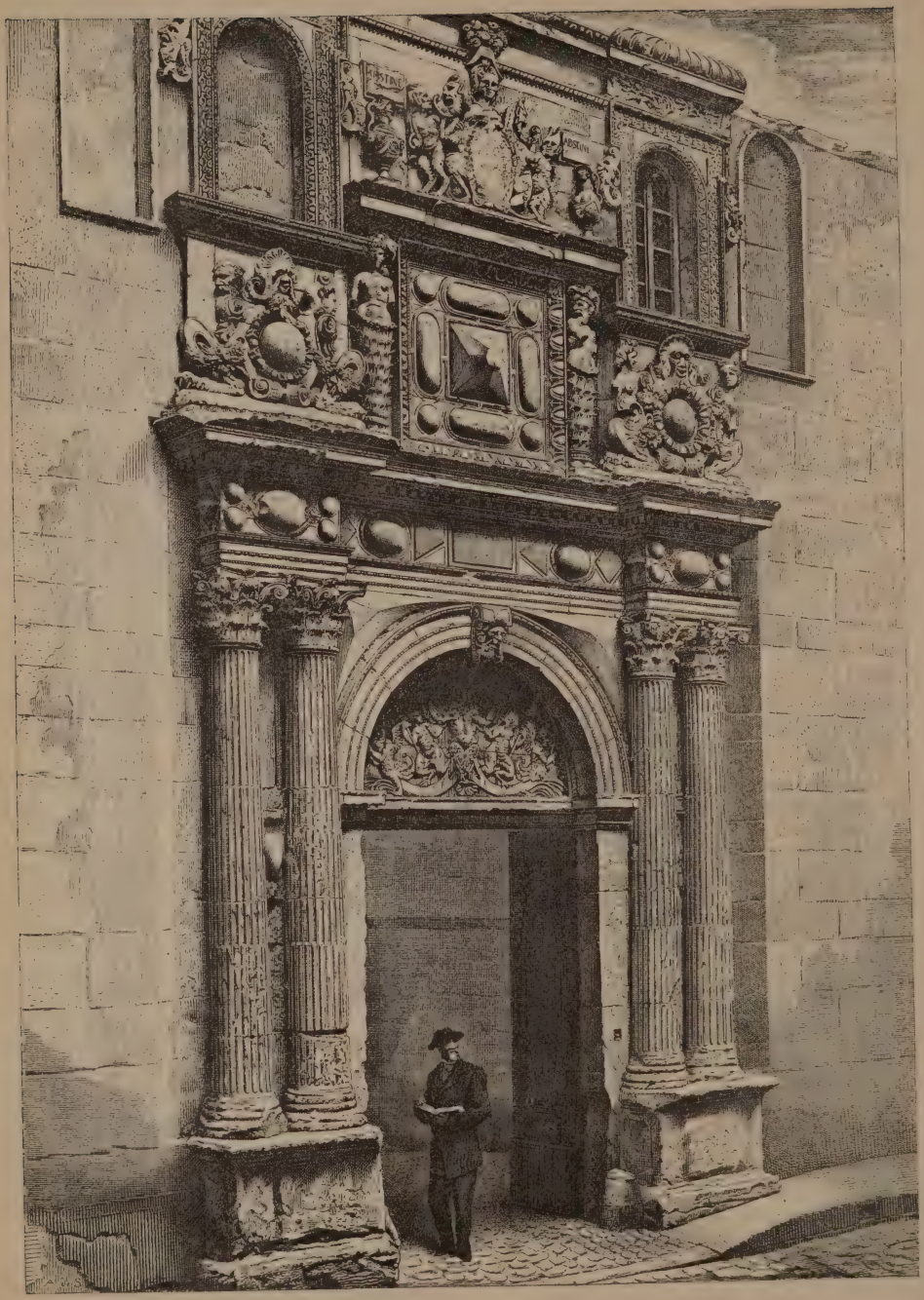
3d. The cost.

From the first source proceed those considerations which determine the general arrangement of the plan and so, to some extent, the external expression, though the latter is principally governed by the exigencies of the site; while from the third obviously arise those limitations which restrain the development of both arrangement and expression.

To illustrate, we may suppose that an architect is receiving instructions from a client concerning a residence which it is proposed to erect, let us say, at the sea-shore. The architect will first endeavor to ascertain the wishes of his client regarding the general character of the house, the scale upon which it is to be developed; whether it is to be largely used for purposes of entertainment or not is a consideration which will materially affect the plan—whether it is to be used as a summer residence only, the number in the family and their individual preference so far as they affect the rooms with which each is more immediately concerned. These and the various other details which concern the internal arrangement will be first ascertained. Then before any further progress can be made the site must be visited and a careful study of it made both with regard to aspect and prospect, that the most desirable views may be made available for the principal rooms and that each room as well may have an outlook toward that point of the compass which is most favorable for its comfortable and healthful use; and, equally important, that the general character and expression of the house may be such as to harmonze with its surroundings. These are all matters upon which the architect brings to bear his professional training and skill, and in all of them, if he be competent, it is his due that his judgment should be trusted, and especially so as regards those considerations of adaptation of expression to site which it is his special function as an artist to determine.

If we were to attempt to indicate the reasoning upon which the architect bases his judgment in all such cases nothing less than a treatise on the whole body of architecture would suffice, yet there are certain general principles which are of universal application, and a consideration of the reasonableness of which, on the part of the client, might tend to lighten the architect's labors materially.

It will be evident, doubtless, that no brief body of rules can be formulated which shall be applicable in all their details to all the circumstances of every



DOORWAY, HOTEL FELZINS,

Toulouse, France.

XVIth Century.

possible case which may arise, but with this understood limitation something useful in the way of a sign-post is possible, and the following twelve propositions are submitted by way of experiment in this direction:

I. The composition of every building should be studied as the principal subject of a picture, of which the characteristic features of the site and its surroundings form the subordinate detail.

II. All possible varieties of expression being at the command of the skillful architect—"from grave to light, from pleasant to severe"—the dominant expression of any building ought to be determined by and be consistent with its use and with the demands of its site.

III. All modeling of façades and grouping of the principal masses of any composition should be based upon sound construction, preference being always given, where the method of expression will permit, to effects derived from conditions of simple stability rather than from conditions of unstable equilibrium held in check by ties and braces.

IV. Every composition should be studied from the general to the particular, or from mass to detail, rather than from detail to mass.

V. That decorative detail is always to be preferred which is derived from ornamented construction, rather than from constructed ornament.

VI. In all trabeated and round-arched compositions piers should be continuous and unpierced and all primary wall openings arranged to centre in vertical lines. In pointed arch compositions it is allowable to alternate wall load and opening in the vertical plane.

VII. Though it is not, perhaps, invariably necessary to indicate externally the exact internal division into stories of any building, it is usually preferable to do so; and at the same time to express by means of the external features of the composition, such as the relative height of the story or elaboration of detail, the relative importance of the several stories within.

VIII. As a general rule, the mass should undergo sub-division more and more as it proceeds from the basement upwards, while the fineness and elaboration of the decorative details should proceed in inverse order.

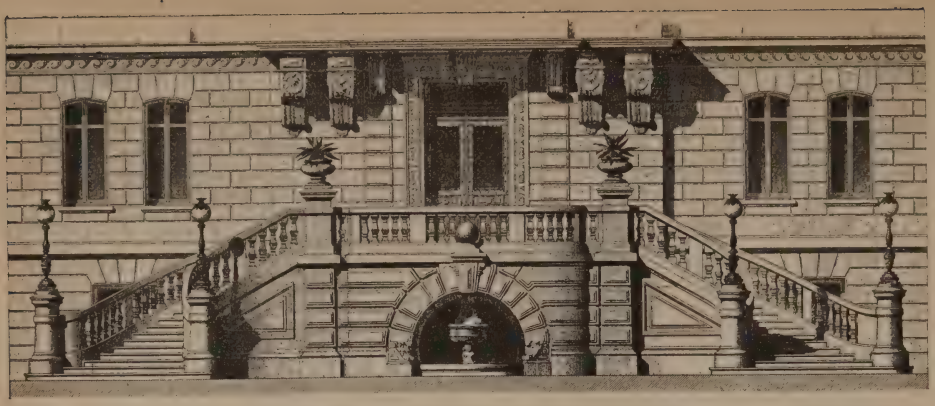
IX. In using color as an aid to expression, variety in the color used should always be in inverse proportion to the sub-division of the mass to which it is applied.

X. The most important requirement of any plan is that it shall be so orderly and skillfully arranged that it shall serve the uses of its occupants in the most complete manner, rooms and thoroughfares being in all cases distinctly separated, the former having invariably direct outside light, and the latter being made as direct and simple as is consistent with dignified and well-ordered effect.

XI. As a general rule those plans would be considered as presenting the best solution of any given problem which are simplest in outline and in internal arrangement consistent with the requirements of the problem, and which have the largest number of internal partitions continuous throughout the several floors.

XII. In arranging any plan both aspect and prospect are to be taken equally into consideration and, other things being equal, that is the best plan which gives to the most important rooms both the best aspect and the best prospect.

C. Francis Osborne.



Paris. ENTRANCE ON BOIS DE BOLOGNE, A. Pollet, Architect.

A MODERN CATHEDRAL.



THERE was much more animation than usual in the manner and converse of those who issued from the wide open doors of St. Paul's Church one Sunday morning not long ago.

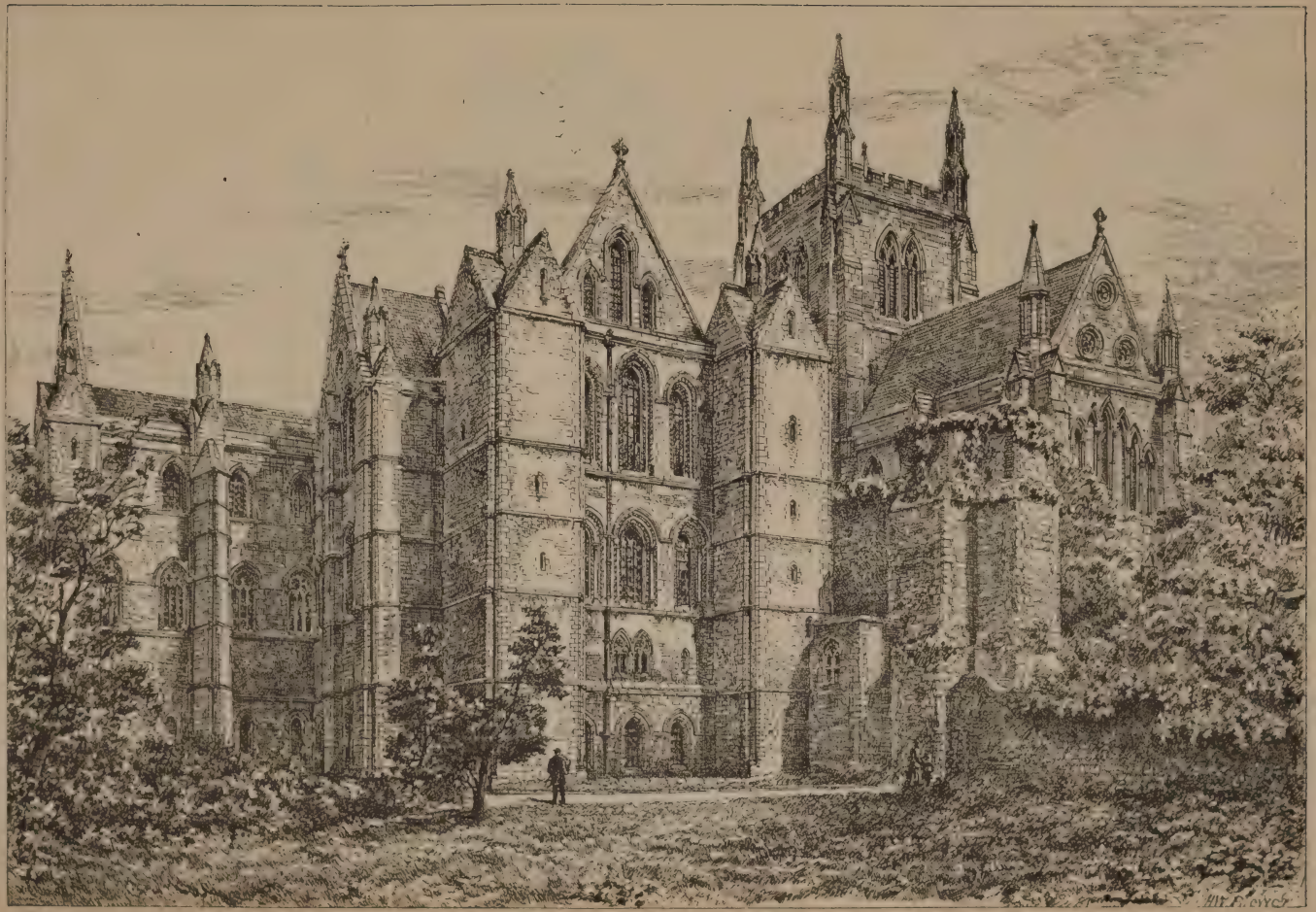
The weather was entirely neglected; not that it suffered therein, but, returning good for evil, it lavished its sunlit western air, brisk with autumn ozone, to the encouragement of the lively discussion.

The Rector had resigned. Not unexpectedly. He had been elected Bishop of the newly-organized diocese of Manitou, with the support and acclamation of his influential congregation. They, in his exaltation, had felt personal and corporate triumph. In a degree they had each and all become bishops. But their mental craving for information as to their new duties and responsibilities had met such vague response that they were soon resuming the old attitude, with, however, a wide-awake interest in the progress of events.

It is the unexpected which happens. The Rector's resignation was natural enough. So was the answer of the Vestry. St. Paul's was the oldest church in the city and the finest in the diocese. Indeed, it was an unusually beautiful building, and deserved the honorable position it occupied in the appreciation of its congregation.

Now, as Mr. Armour very correctly remarked at an informal gathering of a few prominent St. Paulists, the new Bishop was not one who would undervalue his office. Something should be done for him. His dignity, and that of St. Paul's Church, would be mutually sustained if the Church should reorganize, and make the building the cathedral of the diocese. All agreed to the wisdom of this. Those who had already realized that a cathedral was a natural appurtenance to a Bishopric, saw suddenly a solution of a much-pondered riddle. Some who thought modern cathedrals unnecessary extravagances of an obsolete system, accepted it under protest, as it were, after arguing that the Bishop should be all over the State, and that a railroad car, like the Bishop of South Dakota's, was the only real and proper modern cathedral. The majority, having no views or experiences in such matters, had, of course, no prejudices; and as they saw in the suggested action chiefly an added glory for St. Paul's, they acquiesced cheerfully, and thought how natural it all was. A formal meeting was called, and the offer made. The Bishop asked for a few days to consider his answer; then came the unexpected. It was a veritable bomb.

The Bishop declined; and to the con-



Rochester, England. ROCHESTER CATHEDRAL,

gregation this very Sunday morning he had announced his intention of building a cathedral. He was not ungrateful. But Mr. Armour thought his arguments ridiculous, and what Mr. Armour said seemed to nearly everybody else to be what they had all along thought. The Bishop's course was ridiculous. The establishment and publication of this sentiment was what occupied the crowd of men and women slowly dispersing from the porch.

To tell a St. Paulist that his church was not good enough to be a cathedral was to open a wide field of speculation in a most unpropitious manner.

"What does he want?" asks Mr. Dawson, as he turned an unaccustomed corner in order to continue his discussion with Mr. Welsh, who had been trying to conciliate his friend with explanations of the growth of the cathedral system. "What does he want? Well, now," said Mr. Welsh, "suppose we ask him?" And the good Bishop's efforts to answer that question endure to this day. He has convinced some that a church, even so handsome a church as St. Paul's, does not quite supply the need, and he has begun to learn what the need is.

Mr. Armour and Mr. Dawson have changed their question a little. They now ask, what do *we* want? Some day they will build, or rather begin to build, a cathedral.

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The idea of a migratory cathedral is not a new one. There were such in the very olden times in England. Not in railroad cars, probably; nor even itinerant wagons, but wandering unhoused organizations. Let us remember that cathedral means primarily the organization and only secondarily its home. But naturally they settled as they acquired property and strength. Some were found sequestered in insignificant and inaccessible places, until at the end of the tenth century growing experience found voice in the mandate that only a walled city is a fit place for a cathedral, and only in such should they be established.

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Any great institution incurs a risk from its own power and importance. The tendency of all organization is to elaborate itself; and sometimes this reaches even the subordination of the original purpose and idea to the machinery designed for its accomplishment. The cathedral has sometimes threatened to become the end, instead of the means. And its numerous offices have come to be considered goals of ambition and success, rather than posts with laborious duties.

The cathedral is essentially the diocesan church; differing from any parish church, not necessarily in size, but in character. It is a church for the clergy, as well as the people, a place where the hard-worked missionary of a mining village, as well as the popular rector of a city parish, can come with reports of work and find new inspirations and incentive. It is like a general's headquarters on the battle-field, not a place for his personal gratification, but a rendezvous for his staff of officers.

To-day, more than ever before, is this purpose of the cathedral dominant. This is an age of conventions. Every craft and guild which has attained to the dignity of an organization, gathers its members periodically for the benefits of interchange of thought. The Christian Church is the mother of this modern system. Her precepts of mutual support and mutual trust, and her reliance upon brotherly love, began when no other community knew them. Her emissaries and missionaries were carrying messages of peace and good-will at times when political and commercial powers relied upon arms and force. And she still has need of unity and unifying influences. The cathedral is one of these; and inasmuch as a church should be as soon as possible endowed with a permanent home, fit and suitable for dignified service, so a cathedral is deserving of corresponding advantages for its different work.

But naturally a cathedral church will not exclude worshipers who come as to any other church, neither the regular attendants nor those of the casual and wandering class. It must provide for them, perhaps to an unusual extent, in addition to those among whom lie its peculiar functions.

We have, then, to accommodate in a



Bristol, England. BRISTOL CATHEDRAL,

suitable building—first, the occasional great gatherings of clergy and laity from all the diocese; second, the visitors of both these classes continually coming and going; third, a large, regular congregation (who, however, have no higher rights than other members in the diocese); and, fourth, large numbers of irregular attendants, among whom the cathedral has a missionary power which no other church enjoys.

This is a much bigger problem, and a more complex, than that of the parish church. As we gradually realize its nature, we find explanations for many things which were before looked upon as only sentimental or imitative. We see the utility of the cathedral choir, with its named or numbered stalls, instead of the smaller chancel. We discover in this greater space the need for a grand and imposing chant, instead of recitations in natural voice. We are compelled to reopen questions sometimes thought to be settled.

This building is to be a great auditorium. But is it to be only that?

If we gather people on a floor to hear a speaker there is a limit (soon reached) to the space available. A circle 100 feet diameter, or a rectangle 140 by 60 feet, is as much space as an average speaker can command. About 2,000 persons can be seated on such a space. It is a common error to suppose that a larger space will allow of more hearers. It will not. It is not a question of space. On the vast floor spaces of St. Peter's at Rome, in the large crossing of St. Paul's, London, fewer persons can hear comfortably than in many a large church.

Shall we then make a radical change in our ecclesiastical architecture and build an auditorium with tier upon tier of galleries? Emphatically, no. All are agreed upon this.

Shall we then limit our Cathedral to the size of a parish church? Again, no.

For what then are we to build?

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I watched a tourist who entered the cathedral at Toledo. He stopped a moment to get accustomed to the gloom, which, in this wonderful temple, is startling at noontime, and at evening is almost darkness. I had been sketching (an almost impossible feat) and had laid down my book and taken a seat at the foot of a column in the nave when vespers commenced. The priests and choristers filed into the Coro inclosed by those magnificent marble carved walls—a building within a building. A half dozen, or perhaps a dozen dozen (who can tell, in this place of mystery?) worshipers were scattered through the edifice, isolated specks of humanity on the bare expanse of floor, or at the gates of chapels, before altars and shrines, in little groups. The chant and the organ tones rolled from unseen places into the twilight over and around, and made harmonies with the glorified light of the stained glass.

I watched the tourist. He sat down upon a stone base. There were no chairs or seats near. He was English or American, I could see by his dress, a stalwart man. The people around us sank down, one by one, upon their knees. He looked a moment at them, then did the same. At the hotel I met him that evening. He was an Englishman and a Protestant.

What influence was it that made an Englishman and a Protestant bend his knees in Toledo Cathedral?

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A cathedral is much more than an auditorium. It is more valuable in its Spanish form, where all facility for preaching is absolutely ignored, nay, even destroyed, than in the simplicity of a big meeting house.

It is to be impressive. This is a word of wide meaning, but valuable. The elements of impressiveness are many. The first among them is size. Bigness of the whole. Bigness of features, or parts. Then richness. Richness of materials. Richness of handiwork. Richness of intellectual design. All these will contribute, if properly used. Beyond the size of the auditorium for utility, the cathedral must be grand for grandeur's sake, expressing more forcibly than words can the greatness of God and the littleness of man. This is sentiment. It is none the less fact. The world is governed through sentiment, and he who ignores it will not succeed.

"This is a practical age." Behold one of the trite sayings, which breed



France

ST. JEAN DES VIGNES.

modern failures. The generation which rears a statue of Liberty, whose torch shines 300 feet above the sea, is not purely practical. The generation which builds a temple tomb to the memory of its great general is not purely practical. The generation which rides in drawing-room cars costing thirty thousand dollars each, is capable of building a cathedral grand for grandeur's sake.

Nor is this lavishness a new idea. The temple of Apollinopolis Magna at Edfou is as big as any cathedral need be, yet only one-third of its area is available for practical preaching, and this is a court. The Parthenon of Greece allows only one-seventh of its space for a gathering crowd. In the cathedral at Canterbury only one-fourth, and in Westminster Abbey only about one-sixth is so available. We have precedent, if we need it, for making our cathedral seven times as big as a mere auditorium would be.

Spacious aisles and chapels, arcades and cloisters, whose chief utility is in their impressive effect, must be added to and around our auditorium.

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One November evening I turned, tired and cold, disgusted with Italian rain and mud, from the streets of Milan and entered the cathedral. It was a revelation. Warmth, light, rest, peace, beauty, music and sweet incense, all waited me. To the poor, ill-clad toilers who flocked in it was like a paradise. What a power such a cathedral exerts over such a population!

All the senses are avenues of impressions. We see as well as hear. Sight is no less religious than hearing.

Let us appeal to both. As to demeanor, let us be cheerful. The Puritanic bigotry which made joy an attribute of the devil is gone. If any survives let us hasten its end. Our God is a God of glorious, generous light, and the temple dedicated to Him should be rich as well as dignified, pleasing as well as noble; like the forest flower-decked.

Art is the handmaid of religion. All the resources of Art are proper for her service and are needed for our cathedral —perspectives of pillars, soaring vaulted roofs, shadowy recesses emphasizing glowing lights, stained glass, elaborate carving and paintings, none of these are wasted. To say that a cathedral should not be built with this lavishing of art for sentimental object is to say that a cathedral should not be built at all. A big church may properly be economical. Let us build big churches without dubbing them cathedrals.

With impressiveness we must have expression. All art is expressive, but that which is unfamiliar is like a foreign language, and is little understood. Long ago, the Protestant Church ordered that its services should be ministered in the vulgar tongue. So, of its sermons in stone, they should be in familiar language. A newly-explored exotic style may impress without expression. The cathedral should not surprise its people, but touch their hearts, as only a quintessence of their natural or accustomed sentiments can do. Therefore, in style the building should be familiar. Nevertheless, it should have variety. Those old cathedrals and abbeys, which are most fascinating, are filled with works of many dates and many styles. They are blended under the master influence of the main structure. On the other hand, those edifices which are of greatest purity and singleness of date are coldest and least interesting, and hold with less power. Parts and details may be, should be, for variety of expression, built in different styles and treatments, but always done with loving solicitude for the good of the whole; that is to say, always in an honest and appropriate style, and with harmonious treatment. And in great and in little alike, must be evident the emancipation from utilitarian and economical limitations. Utility may originate a motive, but generous sentiment must execute it with tenfold additions.

By such methods we may hope to build cathedrals which shall rival those of old times. We are the heirs of all the ages, and in architecture, more than in any other human art, we must seek for success in accumulating experience. Each of those superb old cathedrals, which we may strive to equal without daring to hope for more, was the



PRINCIPAL DOORWAY, PROTESTANT CHURCH,

ons, France.

G. André, Architect.

product of all the generations before its day, not the work of one man. And so must ours be. An architect must take up what has been done and reverently add to it what he can to continue its development. There is nothing undignified in this course. We are not founding a new religion. We are not, as Mormons, going into the wilderness to begin everything anew with a new gospel, but are doing what our forefathers have well done for nigh on two thousand years. This age is not wanting in respect to the past.

In brief, a modern cathedral, if it is to deserve the name, will be much more than a large church, and if it is to achieve a high place in the world's monuments of art, must do so by conservative methods in design. It must be historical, rather than original.

R. W. Gibson.



ARCHITECTURE AS A FINE ART.



USIC and poetry are broadly classified with painting, sculpture, and architecture as departments or branches of the fine arts. But there is a disposition among art critics to restrict the meaning of the term to painting and sculpture, and, while leaving music and poetry to be discussed by literary specialists, to treat architecture as a merely structural or at best a decorative art hardly worthy a place beside its purely æsthetic sisters. True, the entire group of arts rests upon corresponding principles. Music and poetry, in common with painting, suggest color, tone, shading and proportion, and it requires no great stretch of the imagination to feel a rythmic sense in the undulating or flowing lines of pictures. The painter paints the scenes which the poet describes, and the opera cannot even move and be made intelligible without making a companion of the graphic art. But the vehicle of expression in music and poetry is not sufficiently objective to connect them inseparably with painting and sculpture in the conception of critics, and architecture, like the ceramic art and several other arts that impose a superstructure of decoration on a foundation of utility, is felt to be only distantly related to the family. The relationship is confessed; but the builders' art is felt to be only an occasional visitor in the fine art household, a sort of country cousin to be recognized but not encouraged.

There is much in the history and practice of architecture to justify this exclusiveness. In its elementary principles it is a utilitarian art; and even what we have learned to call the different styles in architecture, in part a basis for its fine art claim, can readily be traced to a structural origin. There can be little question, for example, that the Gothic or pointed style originated in the snow-covered regions of northern Europe, where such a form of structure must early have been found a necessity. It was necessary not only as a means of strengthening the roof against overloading snow, but for keeping interiors dry. Architectural archæologists are inclined to give the invention of the Gothic style to France; but this is probably only because the earliest buildings with pointed roofs built substantially enough to endure were found in France. Centuries of peaked roof cabins and mud huts, however, must have preceded the construction of the earliest buildings to be traced by the architectural historian. Still further south than France, too, the Gothic style received an early development; but it must be remembered that the barbarians who captured Rome during the earlier cycles of the Christian era were civilized enough to make



PROTESTANT CHURCH,

Lyons, France.

G. André, Architect.

their conquest against the veteran legions of the imperial city. They were not cave dwellers, and they carried with them certain structural ideas which they impressed upon the south, and on which the higher civilization of the southern people soon engrafted artistic forms. But it is hardly possible to conceive of Gothic architecture as having any other origin than among the hut and cabin building barbarians of the far north, or as having any other inspiration than structural necessity. But what may be said of the Gothic has been said with equal truth of the other styles. Structural necessity springing in part from the material used and in part from the demands of convenience was the parent of much that we have come to credit with an æsthetic motive.

This is the first ground for regarding architecture as only a collateral relative of the æsthetic or fine arts pure and simple. But it is not the only ground. Architecture is neither universally nor even generally pursued as a fine art. It is pursued as a structural art, on which are superimposed certain decorative features; but these decorations rarely rise into the atmosphere of fine art. They are like the decorations on a piece of pottery. They may be pretty; but we would not regard them as entitled to a place among fine art productions. They are only the performances of industrial workers of the higher grades.

Nevertheless, architecture is a fine art when studied in its higher forms of expression. Michael Angelo was not working less as an artist when he built the dome of St. Peter's than when executing his marbles or pictures; and the masterpieces of all styles, whether Grecian, Gothic or Romanesque, are truly works of fine art. The æsthetic principle underlies their design; and though the architects may not have been able to forget in their execution that they were constructors of many mechanical forms, their inspiration was as purely æsthetic as the inspiration of the painter or sculptor. All art is structural, mechanically structural to a large degree, and the artist who forgets it, whether poet, musician, painter, sculptor, or architect, will forget it at his peril and suffer in his reputation for his transcendentalism. Poetry and music cannot be regulated by the rule and compass; but the poet and musician must carry their compasses in their ears, and learn to measure with the nicest accuracy.

Let us know something of the principles of the fine arts, and, after recalling them, we shall be the better able to comprehend architecture in its truly fine art features. The reader will already have gathered from the context that it is the purpose here to treat it as an art with three sub-divisions, of which the first two are structural and decorative, and we must be careful not to confound these two sub-divisions with the third if we wish to comprehend the subject intelligently, and carry forward a discussion that may be of some practical utility.

It will be needless to state the motives of the fine arts. It is universally understood to be the gratification of the æsthetic instincts, the love of the beautiful. But, as already suggested, beauty is a thing of degree. Some arts that make no claim to anything more than decorative excellence can yet show very beautiful structural or fabricated objects. There are beautiful patterns in wall paper. Yet they are not accounted examples of fine art. Some woven fabrics, woven in colors and delicately shaded, are extremely beautiful. But their designers never studied art except in decorative or industrial schools where only the rudiments of design were taught. Then, too, there are the beautiful designs of the jeweler, the silversmith and the potter. In almost every department of skilled labor the forms of beauty are observed. The very shoemakers revel among curved and graceful lines, and the tailor, with the characteristic modesty of his craft, is more likely to announce himself an artist than an artisan. Where, then, are we to look for the dividing line that separates the fine from the decorative arts?

To say the truth, this line is sometimes very difficult to discover. There are men engaged in the painting of plaques



Lake Shore Drive, Chicago. RESIDENCE OF FRANKLIN McVEIGH, ESQ., H. H. Richardson, Architect.

who are as much fine art workers as men who paint upon canvas or model in clay. The best class of plaque painters, however, should not be regarded as engaged in decorative work. The picture takes possession of the plaque and not the plaque of the picture. The painter is no more a decorator than the historical painter who executes a fresco on a wall or paints a picture on a panel is a decorator. But without mentioning the plaque painters it sometimes seems almost unjust to deny to a large number of decorators in the ceramic art a fine art motive. At some point, however, there must be a dividing line and it is hardly the line which separates the men who work for an exclusively æsthetic object from the men who merely decorate objects of domestic utility. Were this the line architecture must fall from its rank as a fine art. The line must be found in the quality of the work produced.

We enter here upon a somewhat vague field, but if the word be not too long let us try to differentiate the fine from the decorative arts by assuming that the former represent a higher study in linear drawing and modeling, or form, light and shade, color, perspective, and proportion than the latter. They both move along the same lines; but the decorative arts deal only with the rudiments and the coarser forms of nature and art, while the fine arts are concerned with principles, and aim after perfection, though they never reach it. Decorative art is not often even a very closely imitative art. It rarely assumes to study nature for the purpose of making a copy or perfecting an idea; but it deals with conceits and subterfuges, making a very little nature go a great way, and running often after impossible forms. The shaping of gargoyles and other grotesque conceits in architecture, for example, must be considered a decorative art and not a fine art. This is a fact, however, that will hardly be disputed by even the men whose ideas are most confused on the subject of architectural design, and the only purpose in mentioning these objects here is to aid in the delimitation of the artistic frontiers.

This will bring us by the easy gradations characteristic of all art, whether graphic or literary, to the consideration of architecture as a fine art. Attention has been called to the structural origin of the art, and the structural motive by which it must always be controlled. Incidentally, too, it has been seen, by reference to other arts that cling to the boundaries of the purely æsthetic, that it is not necessarily a fine art even in in its decorative features. Like the ceramic art it can only enter into the fine art family when it has been formally introduced by one of those master spirits of design who are at home in all art, though possibly restricted in execution to the resources of a single vehicle of expression. It will be pleasant to trace the relationship between architecture and the fine arts for the chief reason that the investigation will be useful. It is important to know where the architect may be a mere decorator, an industrial rather than an æsthetic workman, and where he must be an artist in the most comprehensive meaning of the word if we are to have good architecture. This is something which is growing with considerable vigor, but as yet it constitutes only a minor part of the riches of this country.

First, then, the architect must be highly cultivated in his conception of linear forms and combinations. In other words, he must have an eye for proportion, not a natural eye, for there is no such thing, but a trained eye, quick to discover discordant composition and effect. It sounds very much like the condemnation of a building when we hear it said that there are some good things in it, for, in the fine art sense, it is almost as true artistically as structurally when we say that nothing can be stronger than its weakest part. A disproportioned church tower, though admirably designed within itself, ruins the whole edifice. And so with a disproportioned cupola or dome, or, for that matter, a disproportioned window or door. Fine art is exacting; and though it may not refuse to parts a certain qualified measure of commendation before demanding perfection in the whole it will not admit that the decorator has been surpassed until all its own conditions are fulfilled.

It is unfortunate for architects that the rules of proportion for their art have never been very definitely formulated. For the chief subjects employed in painting and sculpture these rules are very clearly established. We know, for example, that the total length of the human figure in a well-proportioned adult is seven times the length of the head; that the head itself is divided into four equal parts, one part reaching from the bottom of the chin to the end of the nose, a second part extending from the end of the nose to the top of the eyebrows, a third part reaching from the eyebrows to the top of the forehead, and a fourth part, measuring vertically to the top of the hair. We know that the hand should be the length of the face, the foot about the length of the head, and so on over all the limbs and torso. But the architect must be governed mainly by his sense of fitness alone, for he is a creator in an art that finds no individual model in nature, but which yet draws upon all nature for its rules. Or, it would be better to say, perhaps, that nature imposes herself on the architect through her constant presence in all things without giving him a definite formula for taking possession. He must be governed by his interior perception of well-balanced lines, a perception that can never be reached without very extended study and careful comparison. Hence the comparative rarity of perfectly well-proportioned works in architectural design. The moment the architect ceases to be an imitator of other men, and to build monotonously, he is thrown back on resources which he may or may not possess.

But let us get right on this subject of proportion before attempting to go any further. It is the essence and soul of fine art; and it is of so much importance that there can be no fine art where it is not carefully observed. The City Hall Park, in New York, is flanked by some of the most pretentious buildings in the city, by buildings that cost a total of many millions of dollars, and that were designed by some of the leading architects of the day. There stand the Post-office, the Potter Building, the *Times* Building, the *Tribune* Building, the *World* Building and the *Staats Zeitung* Building, all structures built on very elaborate designs. Yet the modest City Hall, built by a now almost forgotten architect, has not yielded one inch of its dignity in the face of all this architectural display, and there are men who believe it to be the only work of truly fine art to be found in the neighborhood. There is the old Astor House, too, disfigured now with fire escapes, and made to look as hideous as possible. Yet this is another building that has not been put out of countenance by its more ornate neighbors. Why do these two buildings hold their own so well in the face of all comers? Simply because they are well proportioned. The City Hall displays considerable decoration, and the decorations are generally simple and consistent with the design; but these are not the features that have caused the structure to so grow upon popular taste that only the jobber has ever ventured to suggest its removal. Its proportions are nearly perfect. As to the old Astor House there is hardly a feature that can be called decorative on the entire structure. It might be criticised in its proportions for the excess of wall face over apertures, an excess which gives it a not altogether cheerful appearance; but with nothing to recommend it but its entrance, its square lintled windows and its cornice it is almost grand in its effects, and is certainly dignified. Perhaps the architect was not a genius. Perhaps he knew nothing of independent design, and only followed the Greek in his proportions. So much the better, then. Better to follow the Greek than to go wrong. It seems to have been an accomplishment of the Greeks to be able to carry the fine arts as far as human skill has been successful in tracing the way.

These remarks might not unnaturally raise an incidental question on the elevation of buildings. Architects are defended apologetically for seeming errors in proportion because the proprietors of new buildings, for the sake of increased profits, insist upon building to a great height. But elevation has nothing to do with good or bad



CENTRAL HALL, SOUTH KENSINGTON MUSEUM (ACCEPTED DESIGN),

London, Eng. Aston Webb, Architect.

proportion. An exceedingly high building may be as perfectly well proportioned as a low building. It is the parts in their relation to the whole that make proportion; and whether a building be constructed with one story or ten stories it will be well proportioned if properly planned. Campanili, towers, and monumental shafts all serve to show that great elevation is not necessarily ruinous to proportion. It may be a contributor of stateliness, indeed, and stateliness is an architectural merit instead of blemish.

Growing out of the lack of a sense of proportion, one of the chief blemishes of the architecture that we see around us is in the treatment of roofs and cornices. Many architects will do very well in the arrangement of façades until they reach the top of the wall when they seem to break down completely. The reason for this failure is very evident. The talents of the decorative artist serves them indifferently well in the treatment of the detail below; but the moment that they reach the point where their design must be crowned into a compendious whole they are found wanting in the higher artistic sensibilities. They are not deserted by their decorative accomplishments. They will crowd the cornice and roof with objects intended for embellishment; but the genius of design, the presiding genius of the fine arts, is absent.

A few years ago the craze for the Mansard roof—it should more properly be called the Mansard story—swept over this country, and we still see it exemplified on many of our most pretentious buildings. It possessed at least one advantage. It furnished architects who had no accomplishment for design a top finish for their plans not altogether to be condemned. But it was an invention made for decorative purposes only, and was not consistent with any of the three fundamental styles of architecture, each one provided with its own system of roofing. Naturally, therefore, it was short lived in this country. But when one looks along the ragged lines of our cornices and roofs, and sees so much that is not only weak but positively vicious in design, he can hardly help regretting that the incompetent architects at least did not continue to follow the new fashion. A building finished with the Mansard roof is apt to look symmetrical, even though the symmetry may be of a monotonous type.

It is not a little surprising to see how few buildings will stand the test of proportion. Of the several hundred churches in the City of New York the writer can at this moment recall less than a half dozen among all those that he has seen that will stand this test, and of this small number not more than two, Trinity Church and the new Memorial Church on Washington square have conspicuous merit. St. Patrick's Cathedral seems to fail in expressing the true spirit of Gothic lines, and it can hardly be placed among the less than half dozen. The writer has not seen all the new up-town churches; and this perhaps is fortunate, for he does not wish to be too sweeping in his condemnation, and is willing to hope that a revelation awaits him when travel has enlarged his vision at some future time. Of the external appearance of the theatres and other places of entertainment nothing that is commendatory can be said unless the new Madison Square Garden forms an exception. But this building is too much of a colosseum in size to be judged in the midst of its surroundings. We can only know that the picture looks well; but pictures of very large structures drawn even in perfect proportion are not always trustworthy in reproducing the effect of the original. Our hotels and apartment houses, often very expensive buildings, are generally commonplace, except in decorative art; and the architects of our more expensive private dwellings are apt to have their heads so full of the picturesque that there is no room for the sense of classic proportion. As for the public buildings, there is none except the City Hall that is worth mention. Had the architect of the Post-office been able to discover any more architectural vices he would probably have found a place for them somewhere in his structure, and the Court House is simply the reproduction of a Greek structure by an architect who forgot to measure the relative width of his

portico. We have some well-proportioned buildings erected for the uses of commerce and finance, but they represent oases in the midst of an artistic Sahara. It is a pity, too, to be compelled to say that we seem to be improving more rapidly in decorative art than in those features which represent fine art. Details are very generally wrought out with an almost complete forgetfulness of general effect, or, as a painter might express it, of the masses.

"But surely," exclaims an objector, "you do not pose all architecture on proportion when considering it as a fine art." Fundamentally, however, such is the intention. How can we pose it upon any other foundation? Do we not know that those exclusively fine art workers, the painters, when engaged in the pursuit of the beautiful, think of nothing but proportion, unless it may be of the "ridges" that are apt to rise on the surface of their pictures when they indulge in a too prolonged pursuit of proportion? They may not always begin their pictures with a pair of compasses in one hand and a piece of charcoal in the other; but from the time the work is begun until it is finished it is nothing but a study of relations. Proportion in linear drawing, proportion in light and shade, and proportion in color is the painter's ever-present dream; and when everything is done the best proportioned picture in all its parts will be the best picture. A finger drawn either too long or too short by only the infinitessimal part of an inch will ruin a whole hand, and no man so well as the painter can appreciate the truth of the old proverb which says: An inch on a man's nose is considerable. The sixteenth part of an inch added or subtracted might be the secret of a rejected portrait and a disconsolate young artist if there were no one present whose eye was sufficiently well trained in proportion to locate the fault. Then if proportion is of so much importance to painting how should architecture expect to rank as a fine art and form an exception?

Nevertheless, not to pursue this subject without variation, it may be said that architectural proportion is subject to some modifications. There is one proportion for the classic and another for the picturesque. Still, we cannot escape the meshes of the law even when giving wing to the fancy. The man who builds a roof so large that it threatens imminently to crush down the walls and bury the structure in general ruin is a bad architect, even though he may feel perfectly secure in his supports. Neither can a man be justified in erecting chimneys externally to the building, and so large that they suggest deformity, after it is very well known that such chimneys are no longer needed for service, and that they were the offspring of a lack of structural knowledge instead of an artistic sense when they were first planned. Nevertheless, certain elements of proportion enter into the picturesque which do not enter into the beautiful. But if there is only a step between the sublime and the ridiculous there is no more than a half step between the picturesque and the ridiculous, and architects must be careful that they do not overstep the boundary even while they think themselves on the true ground.

Let us study a few of the uses of the picturesque in architecture where it can best be reconciled with fine art principles. Such building is admitted to be extremely appropriate in the rural districts where the scenery is broken and picturesque. Among the foot hills of mountains, or on the precipitous banks of rivers, it is exceedingly effective. But it also has its uses in towns, though we fear that it must always be restricted in its adaptability for the square and rectangular blocks of our American cities. But our cities are not all constructed on the checker board plan. In the older cities of the Atlantic seaboard, and even elsewhere are to be found streets intersecting each other diagonally, and at the points of intersection the sites for buildings must be irregular in form. Here is an opportunity where an architect of taste and invention may indulge in his love of the picturesque, and find it æsthetically profitable.

Let us look abroad in New York and observe at least one example of the misuse of this opportunity. Unfortunately it is generally misused. With-

out some modifications a building cannot be constructed in either of the regular styles of architecture on such a plot unless the architect is willing to confess it an architectural derelict in advance. What may be called the science of architecture is founded upon right angles, and when the art of architecture is forced to contend with acute or obtuse angles it is taken at a disadvantage.

The most conspicuous example of the misuse of an irregular site to be found in New York will be seen in the new *World* Building, and the selection of this building will cover all of a corresponding kind. It is a structure of prodigious elevation, surmounted by a gilded dome. The eye becomes wearied, and the head almost giddy in counting the rows of windows that rise tier above tier to the pediment at the top of the façade. Yet, when this altitude has been reached, the spectator is only at the base of the rotunda that supports the dome. Another giddy flight is necessary to reach the summit. But the site is neither a square nor a rectangle. It is a parallelogram, and the structure offers, therefore, the very illustration that we need.

Now, what kind of a building should have been erected on this site? Should it have been a building with regular or with picturesque lines? Should the façade have been treated precisely as though the building stood on a square or rectangular plot? It will hardly be prudent to try to answer all these questions at once, so the last shall be answered first, and then the preceding questions will perhaps need no answer.

It will be entirely safe to give a negative answer to the last question for the simple reason that the structure could not have been treated as though the plot were square or rectangular without an architectural solecism of which no good architect would be guilty. The architect of this building was not capable of ignoring the fact that the structure had an acute angle at the intersection of Frankfort street with Park row, and he has carefully rounded it off as he would not have done had it been a right angle. Then if he did not forget it in the design of his façade why did he forget it in the construction of his pediment and dome? An acute angle will always assert itself; and if there be any projection on the roof of a building with such an angle it must be placed there or the structure will look misshapen. We see, then, that the picturesque should have dictated the plans for the *World* Building, and as a dome is not picturesque the classic design attempted should not have been considered. A simple tower, which might climb to the elevation of the dome and have a projecting instead of an upright flag-staff, if the editor wants it, might be placed at the obtrusive angle. Then remove the pediment over the façade and the *World* Building might yet be one of our best architectural examples. It is not so now, and we see therefore that no such building should have been erected on the ground.

Corresponding remarks might be made with reference to many of our most pretentious buildings. Down town, in the irregular districts of the city, and along Broadway, north of Union square, where the lateral streets cross the chief thoroughfare diagonally, the necessities of the irregular site are sometimes observed and sometimes unobserved, and wherever they are not observed the architectural performances are painfully discordant. But in pleading for a picturesque order of architecture as best adapted for these exceptional sites the writer would not like to be misunderstood. Such an order is most suitable for buildings with an acute angle in view, and possibly also for buildings with an obtuse angle; but with proper treatment for the obtrusive corner the classic is not to be altogether condemned. There is danger in towns of a too deep indulgence of the picturesque intoxication. Less governed by law than the classic this order of architecture is easily carried into the grotesque. We have some very conspicuous examples of its deflection in New York.

But this discussion is somewhat though not altogether in the nature of a diversion. To uphold the importance of proportion as the crucial test of fine art in architecture is the purpose of this article, and advocacy of the picturesque



Glasgow, Scotland. TOWER, UNIVERSITY BUILDINGS, J. Oldrid Scott, Architect.

under any conditions may seem like a relaxation of the bonds. But the relaxation is more seeming than real. The picturesque, though differing from the classic, is subject to its own laws, and so long as the material of construction used is the same in all orders and styles, there is a general law which must be universally comprehensive. The picturesque must therefore remain subject to this general law, as well as the pure Greek, the pure Romanesque, and the pure Gothic. In fact the truly picturesque can be nothing more than modification, more or less original, of one or all of these styles; and the man with a truly æsthetic instinct will not try to move along any very erratic lines.

It would be hard to explain precisely how the laws of proportion for architecture were formulated, as no single object in nature could have furnished the standard. There is nothing to teach the proper relations between the column and its capital or plinth, the door and its pediment, the façade and the cornice. Yet men of even the most uncultivated taste are conscious that these objects hold very close relations with one another, and that disproportion between them means deformity. There is an immeasurable difference, however, in the powers of different men to judge of these relations. Whence is the origin of these powers?

Some men might tell us that they have their origin in an inner sense. But this would be a transcendentalism hardly worthy the analyst. The metaphysical may stand aside, and let us maintain that there is no inner sense not acquired from the productions of nature or art. Fundamentally, the sense of proportion in architecture must be a fruit of evolution. During the many centuries that architects have wrought, architecture has created its own code, to which all its disciples must conform at the peril of ostracism if they fail.

But this does not quite cover the ground. The sense of proportion and taste are as nearly synonymous terms as we can find, and the best architects gain instruction in a school that transcends architecture and comprehends in its curriculum the entire domain of art. They have been taught in the school of nature, and learned to know a graceful, a strong, or a consistent line when they see it. Michael Angelo learned to build the dome of St. Peter's when he was engaged upon his marbles and pictures many years before he thought of becoming an architect.

The limits of a magazine article will not permit a very exhaustive discussion of this subject. It is so broad that it comprehends almost the entire philosophy of art; and little more can be attempted than to call attention to first principles, leaving the reader to make his own deductions. The main object has been to give such an analysis of architecture that young architects may know when they are working in the different departments of their art, and thus escape the wrong direction which may lead them to draw mistaken lines during the whole course of their career. The old proverb which says "A bad beginning makes a good ending," is given a much more truthful meaning when it is made to read: A good beginning makes a good ending.

Architecture is a many-sided profession, and there is always great danger that in the management of details the architect may forget the fine art side, and try to play Hamlet with the part of Hamlet left out. It is so easy to mistake decoration for fine art!

Yet it is not the purpose here to maintain that decorative art is not legitimately an important feature in architecture. It is indispensably necessary. But it should always be regarded rather as an architect's material than his object and it is safe to say that no really good architect regards it from any other point of view. Decorative art is necessary; but fine art is only reached by making decorative objects into a symmetrical whole.

How should students of architecture cultivate their sense of proportion? This is a question that may very well be asked, for an architect's training at present is too little suggestive of artistic training to be altogether satisfactory. Why should not architectural

students enter fine art drawing classes and become good draughtsmen as a preliminary to their professional career? It is thought that they do not need the special kind of tuition given in those classes. But it is precisely what they do need. An art student does not draw in order that he may practice his eye and learn to imitate, so much as to cultivate his artistic sensibilities and his knowledge of form; and if an architect does not need this sort of cultivation it would be hard to say who does need it. Michael Angelo built the best dome ever erected because he had worked himself up to a sense of grand combinations by his studies as sculptor and painter. To the degree that architecture is a fine art the architect needs precisely the same kind of training that a painter or sculptor receives. Such a training can only be adequately given with the crayon.

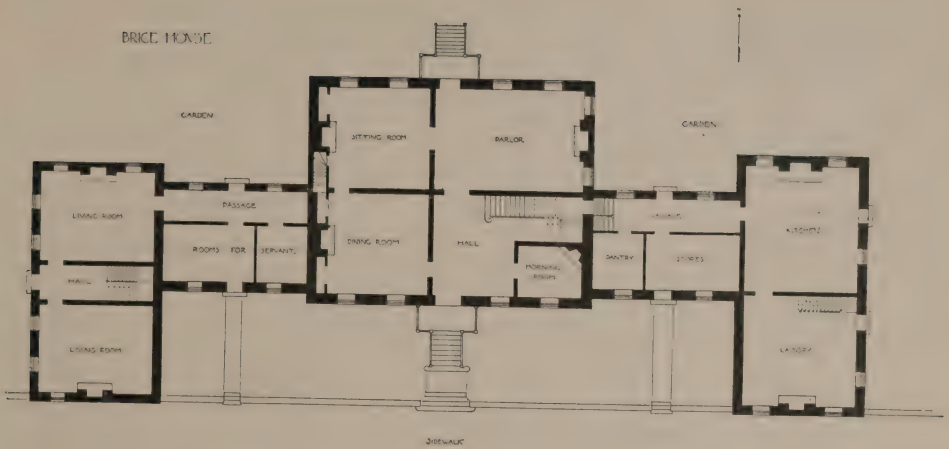
Wm. Nelson Black.





BOY ON DOLPHIN.

Miss Ellen M. Rope, Sculptor.



PLAN OF BRICE HOUSE.

COLONIAL ANNAPOLIS.

IN dealing with a subject partially historical and partially descriptive like that before us it is necessary by way of introduction to go into the question of the causes which have brought about a revival in this country of the style of architecture which we are about to discuss. Of course, we could not affirm that the merits of our Colonial architecture, however great they may be, were enough in themselves to produce a reaction against the effort to make a national style out of a variety of Mediæval forms. The work of our forefathers, however estimable it may be, is only one form of expression among a numberless variety of those great truths that underlie all the architecture that has drawn its inspiration from classical laws, "orders" and proportions, and which have been handed down by successive ages to ourselves. If that "style" which some are pleased to call "Romanesque" had not gone so far in the direction of breaking down the very principles that underlie architecture and common sense, this reaction would never have gained force so suddenly nor have been so enthusiastically welcomed over the entire land.

Our people have seen liberty running riot and the country being covered with buildings that give expression to an endless variety of individual conceit. However conspicuous and however valuable may be the ability of those who led in this "Romanesque" movement and gave it its whole life and purpose, the influence that it was having upon the less conservative and upon the poorly-educated students of architecture was certainly most unfortunate —in fact, demoralizing in the extreme.

A style which was only half known and poorly understood and whose motives and examples were being taken here or there or anywhere soon produced a crowd of imitators, mere "blind leaders of the blind," who seemed to glory in the fact that their enthusiasm was unrestricted and that their ambition was to produce novelties in design, never before dreamed of in this land or in any other. And yet this was not a broad field for a liberally-educated architect. On the contrary, he constantly found himself hemmed in between classical motives on the one side and Gothic principles on the other. He had no standards of his own, no rules of proportion, no "orders." What authorities could he turn to for advice? Who was to decide for him

what was right and what was wrong? He consequently took the whole matter into his own hands and assumed a position as his own authority and his own judge, with the results that are unfortunately too common and too conspicuous to-day to need any description.

A reaction, therefore, against such loosely-compiled formulas, or rather against this painful lack of any method, law or limit in the expression of ideas was a perfectly natural result, and its influence to-day is all tending to bring again form out of chaos and place law and order where they belong. Our revival of classical motives expressed in every variety of Renaissance has been the result.

Among all these forms of Renaissance architecture in the Old World, representing historical epochs and great nationalities, our students turned to seek their favorites and their ideals. At the same time they recognized the value of certain examples of Renaissance work in this country, not only that portion of it which dated back to the first years of the last century, but equally good examples of a widely different type belonging to the early years of our own. But to all of this, with more or less inaccuracy, they have given the name of "Colonial architecture," whether it is found in the Northern, Middle or Southern States, whether its prototypes were English, Dutch, French or Spanish, or whether its examples were built of frame, brick or stone. To be sure, it is poor in comparison with its prototypes in Europe, yielding little else than examples of domestic architecture scattered widely over the land. It was born, too, when the colonies with few exceptions were poor, struggling communities, when skilled labor, wealth and variety of materials were greatly needed, and when obstacles of all descriptions had to be overcome.

This native architecture of ours, growing up with our colonies, sharing their privations here and their prosperity there, and reflecting in no imperfect way their general tastes, lives and wealth, has left us with splendid models for our work to-day, in their simplicity, their dignity, their refinement of detail and the good common sense generally that pervades them throughout.

Whatever criticisms we may have to offer upon the taste of our forefathers in planning and in decorating their buildings, they have very rarely indeed been accused of either ignorance or carelessness in the construction of their homes; while taking their work as a whole, even in the matter of design alone, we may well hang our heads with shame at the contrast afforded by comparing the Colonial work of any section of the country with the average production of to-day. Whether that undeniable fact points the moral of confining one's self to a well-tried and thoroughly understood form of expression, or whether it teaches that simplicity in carrying out what reason requires and demands is the sure path to success, we shall not stop to discuss now, but proceed to exemplify these suggestions in what we shall see presently. Each of these colonies built its own peculiar and characteristic type of dwelling, planning it strictly in accordance with what common sense and means permitted. Custom, climate and taste gave to each its individuality, so that you never have to question to what portion of the country a certain type of house belongs, for its plan, material and general appearance at once indicate that. Why this should have been so in that one matter of material we cannot always understand, for stone was as plentiful in New England and in certain parts of the South as brick or frame, yet the colonists of New York and Pennsylvania seem to have almost entirely monopolized building in stone, while the New Englander, with that material in even greater quantities, and with brick at hand in abundance, preferred frame; and the Southerner with both of the other two confined himself almost entirely to brick. No Colonial work is more easily recognized than that of the Marylander or of the Virginian. Circumstances and tastes combined to make his life and his pursuits wholly unlike those of his more Northern cousins. Springing from a different type of the

same stock, his ambitions were realized in that free and happy atmosphere where he had founded his new home; and just as his Puritan brother carried simplicity and frugality in all things to their bitter end, so the Cavalier of the South sought to make his colony the ideal of comfort and luxury that would compare favorably with the best the Old Country possessed. With a charming climate and a soil easily cultivated and naturally productive, his wealth was assured him, while his fondness for cultivation, ease and good living soon gave its expression to every detail of the home he built. That stamp of refinement, elegance and durability that was borrowed from the old homes of England of this date characterize the appearance of his house, while the arrangement of the plan is throughout in perfect harmony with its surroundings and the requirements of each case.

One peculiarity of his colonial life that required expression in the plan of his house was the large number of Negro servants (generally slaves), with which he was at all times attended. These had to be provided for in quarters conveniently near, and yet not under his own roof. From these requirements grew the broad expanding plan, with its "wings" at one side or both, and in order to turn this necessity into a valuable part of the general composition he treated them in such a subordinate manner as would give to the central building an importance and a dignity that it would not otherwise possess. Essentially a countryman by preference, he loved, above all things, the comparative solitude of a great country home, with its dependent village of servants, farm hands and mechanics, its stables of English horses, its barns filled with high bred-cattle, and, beyond, its flourishing fields of tobacco and grain.

When, however, his business or profession required him to live a part of the year in some town or city, we find as a rule the same general plan for the house followed as he had already adopted in the country; and the small allowance of room for garden surrounded by a high brick wall is laid out with exquisite taste, and with the evident purpose of making it as private and secluded as circumstance would permit. It is with this latter type of Southern house that we are now to confine our attention, and especially that one which was developed through circumstances and under conditions quite unique in the history of our American colonies.

The City of Annapolis, once the chief port of Maryland and the seat of its Colonial Government after the year 1694, owes its origin and many of its early traits of character to its Puritan settlers. It was offered as an asylum by the Lord Proprietor to a body of these hardy colonists, who were persecuted in Virginia and finally driven from that State. Here they laid the foundations of "Providence," as the first settlement was called, although it was probably not on the exact site of the present city. "Anne Arundel Town," named after the wife of the third Lord of Baltimore, was the real parent of Annapolis, the City of Princess (afterwards Queen) Anne of England. On the beautifully-formed peninsular at the mouth of the Severn River, nearly surrounded by exquisite sheets of water, the first colonists found an ideal site for a prosperous town, and between it and the Chesapeake Bay a harbor which promised to give to it the commercial supremacy of the colony.

Here they laid out their town, not at random, but with a fixed idea of making the most of all the advantages that the formation of the ground, as well as its surroundings, possessed. Circumstances, which in later years turned the tide of prosperity away from here and left this quaint old town to remain almost unchanged for a century "as the finished city of America" as it was called, have been kind to us and to students of colonial life, in that we have been left with so charming a sight of something which time has erased from the appearance of almost every other city in the land.

From its infancy, Annapolis had a peculiar and quite unique manner of development, as unlike that of her sis-



MAP OF OLD ANNAPOLIS.

ters as her appearance to-day differs from theirs. She did not begin with hurriedly-built huts, scattered over the surface, that were transformed later into comfortable dwellings and arranged with order and symmetry; but from the very first her English colonists seemed to have conceived a delightful ideal in the planning of their new city, and to have had at hand both the means and the authority to carry out this arrangement to its completion. As a starting point, in the centre of the city, and upon the greatest elevation the peninsular afforded, they set apart a circle with a radius of 528 feet, which space was to be occupied by such buildings as were necessary for the officers of His Majesty's Government. To the west of this point they reserved another circle as the site of the church. From these two centres streets were laid out, radiating in all directions and parallel with the river. Others were carried from the shores of the harbor to the opposite side of the city. The larger circle soon became the site for the House of Burgesses,

probably the oldest building in Annapolis to-day, and later, when the seat of government was moved here from St. Mary's in 1694, the first State House was erected at the highest point on this hill, which may originally have been occupied by a fort. In 1699 the first church was built, and then the State and Church, as the two centres of influence, completed a picture that was as unusual as it was appropriate. Along the river's banks on the north, on the harbor and overlooking one of the river's branches called the "Spa," which bordered the city on the south, the property was deeded by the Lord Proprietor for building sites; a small area being reserved on the harbor for a dock and for commercial uses. Likewise that portion of the city between the State House and its northern and southern borders was apportioned among the more influential colonists, the amount of this property depending upon circumstances and varying in extent from an entire square to a fourth of one.

Only a few houses to-day have their original terraced gardens leading to the water, and overlooking the harbor and the creek, but these few are enough to give us a very clear impression of what must have been the appearance of this charming old town when, in the height of its glory (1750-1776), its entire water front, with the exception of the wharves and dock on the harbor, was lined with stately mansions, surrounded by their gardens and partly hidden among luxuriant foliage. Certain streets connecting the "State House Circle" with that part of the harbor front that had been reserved for commercial purposes and with the high road to the west, were set apart for the homes and places of business of the trades-people. To the west of the church was left an open area of ground called "Bloomsberry Square," reserved as a "Common" for this class of the towns-people. Overlooking the open space about the dock were the Government Custom-House and stores, and on Duke of Gloucester street, at the head of Market, was another open space where the markets were held. Some of the city's streets were named after popular princes, such as Charles street, Prince George (of Denmark), King George (of Hanover), Duke of Gloucester, etc.; two after the well-known London highways, Fleet and Cornhill, and others again after the points of the compass and the trades that were practiced there. What an unusual picture this miniature city must have presented to His Majesty's Royal Governor and the happy Burgers of Annapolis as they looked out from the Colonial "State House" (as it was called) upon a scene that must have been even more charming then than it is to-day, and possessing in all its features an effect that must have been as impressive as it was unique. On all sides but one delightful estates met the eye, and from among the thick foliage that surrounded them the dark red walls and chimneys of proud homes appeared; while at their feet lay well-shaded gardens and lawns separated by brick walls to complete this picture of a thoroughly English character. Beyond these, others like them in general effect appeared, until the last line of houses overlooking the river, the harbor, or the creek, could be seen forming the boundary line of the city's limits in those directions. To the east, and therefore directly in front of the State House, was the triangular section of the city connecting this centre or "circle" with the dock and wharves which, we have said before, had been reserved for the purposes of trade and commerce. Within this portion small closely-built hip-roofed houses extended to the dock where large storehouses lined the open space and stood out conspicuously above the others. Within this region and in another west of the church to which we have already referred the trades-people lived and worked, and outside of these restricted limits they could do neither. In fact there was an old city ordinance in effect at the time prohibiting any one whose occupation produced either noise or smell from living within a certain distance of these well-defined limits.

Still further were the boundaries enjoyed by these people restricted upon certain festive occasions. For when the gentlemen of the town masquer-

aded in the streets adjoining their homes, and made the air ring with their noisy merriment, no tradesman, or any of his kind, was permitted in these streets to witness this highly entertaining and not unusual sight.

This exclusiveness at such times may have been most fortunate as far as its example was concerned; but no one would be apt to explain it, taking other customs into consideration of a similar character, in any other way than as the inborn desire of these lordly aristocrats to show forth old conservative relations between "the classes and the masses." Their houses were as a rule placed almost directly upon the streets, with the walled gardens at the side and rear. These gardens still show traces of the great skill that was devoted to them; and especially is this noticeable when they were laid out in terraces along the water fronts.

Covered porches were few and small, as a general rule, and piazzas were almost unknown to the first colonists. Shade trees and arbors answered their purpose then, for our forefathers still adhered to their English habits of life as well as to their English plans, and it was left to succeeding generations to discover that this Southern climate required marked alterations in the arrangement of their homes to insure perfect comfort and convenience. From the early years of the last century, but more particularly from the middle of it, down to the breaking out of the Revolution, Annapolis saw her "palmy days," and certainly in the length and breadth of this land it would be impossible to find such another perfect miniature city, with all the habits, life and tastes that were common among the aristocracy of England at that time, and possessing peculiarities of her own in appearance and in her life unknown elsewhere on this continent. To quote from an old record descriptive of the city as it appeared in 1749, after referring to the fact that all traces of her early Puritan origin and life had disappeared, it goes on to describe the condition of the city and the character of its inhabitants in these words: "The outlook of the city was fair and promising; its merchants had secured the chief trade of the province; ships from all seas came to its harbor; its endowed school (King William's) educated its citizens for important positions; its thought made the mind of the province, the gayety of its inhabitants, and their love of refined pleasure had developed the race-course, the theatre and the ball room; their love of learning the 'Gazette' and King William's school; creations and enterprises that made the province famous in after years as the centre of the social pleasures, of the culture and of the refinement of the American colonies."

To quote from letters of the English Surveyor of Customs at Annapolis, we have a few more pictures of that life that might be worth adding here, illustrating the city just at its highest point of development—a few years before the Revolution:

"I am persuaded," he wrote, "that there is not a town in England of the same size as Annapolis which can boast of a greater number of fashionable and handsome women; and were I not satisfied to the contrary, I should suppose that the majority of our belles possessed every advantage of a long and familiar intercourse with the manners and habits of your great metropolis. * * * In this remote region the phantom pleasure is pursued with as much avidity as on your side of the Atlantic, and certainly with as much gratification. * * * Our races, which are just concluded, continued four days, * * * and, surprising as it may appear, I assure you there are few meetings in England better attended, or where more capital horses are exhibited."

Then he continues by describing the "assemblies" and theatrical performances that this "fashionable and brilliant" society enjoyed at the time. The Drama in America began its life here, and with the encouragement of the Royal Governor it attained as great a state of perfection as was found in the most celebrated provincial theatres of England at that date. Club life at this time seems to have almost monopolized the attention of these people. No less than sixteen existed, and the chief of them, the "Tuesday Club," had so wide a national reputation that it counted among its members distinguished men from all parts of the country.



CARROLL HOUSE (CARROLLTON).

Annapolis, Md.

(See page 316.)

In religious feeling, Annapolitans were thoroughly loyal to the "Mother Church," which was "established in this State as well as in Virginia, and though the fact that the Governors and most of their advisors belonged to the Roman Catholic Church placed that faith in great prominence, its followers were in a small minority, and at this time had no church for divine service.

The first Colonial State House was built in 1696, the second in 1706, and the present building from a design, it is said, by a pupil of Wren's, was erected in 1772.

There was probably at that time no State capital in the colonies superior to it. It had always been the centre of the social as well as the political influence here, and its legislative halls were as celebrated for their brilliant receptions and balls as they were for the weightier matters in the affairs of the colonies that were here considered. Its exterior is not so good as the interior. Its walls are absolutely square and plain and its dome is too high for its base. But its plan and interior finish is what most interests us and what best explains the taste of its architect. Unfortunately it is just that portion which has suffered from the hand of the political "restorer"—and destroyer.

As we enter its great hall or rotunda from the eastern porch we find a stately interior that still retains traces of its former beauty. The octagonal dome is well placed on its four supporting arches, and rises more than a hundred feet above us. On the right is the Senate Chamber, one of the most historical halls in this country. Here it was that the National Congress met in December, 1783, when Washington resigned his commission as Commander-in-Chief of the American Army, and here in the following year the peace with Great Britain was ratified before Congress, thus closing one epoch in our nation's life and opening the new one. Here, again, the first National Constitutional Convention met in September, 1786, to take steps towards framing our present system of government.

With the exception of its four walls and the huge portraits of Maryland's "signers," together with the picture of Washington resigning his commission, there is little left of its original charm. Vandalism and "politics" have stripped this historical hall of nearly all its beauty to make way for cheap-looking, modern "finery" and decorations that already have a melancholy and dilapidated appearance. The old "Ladies' Gallery," a beautiful work of art, which extended across the southern wall, has recently been removed to make room for benches where the idle and the worthless sit and stare and enjoy the staple weed to their hearts' content.

On the east side of the hill and below the State House is the old Treasury of the State, in the early days of the capital used also as the House of Burgesses. Although quite small, its quaint outline always attracts attention. It was here recently that an old safe was found that had been hid away during the Revolution, and upon being brought to light and opened a great discovery was made. Besides numerous papers, of more or less value, were found the original seals of the colony, being the private seals of the first Lord Baltimore. Like other States of the Union, Maryland had adopted a new seal after the Revolution; but in 1872 its Legislature decided to restore the original seal intact. The great seal of Maryland therefore presents a marked contrast to those of the other States of the Union in that its device possesses armorial bearings of a strictly heraldic character, being the family arms of the Lords Baltimore, which were placed by the first Proprietary upon the Seal of the Province at the time of its founding.

To the south and at a short distance from the "Circle" stands an old house with brick ends and clapboarded sides. This is probably the oldest dwelling in Annapolis and together with the "Green House," on Charles street, it represents the earliest type of house that the colonists erected. Next in chronological order and among the most interesting and imposing "mansions" of the city is the "Carroll House," the town residence of our famous "signer" and



REAR PORCH OF RIDOUT HOUSE.

(See page 318.)

statesman, and the centre of "Carrollton," the name that he always affixed to his own. From its delightful terraces that remind one constantly of Southern France or Italy, one looks out upon the "Spa," a broad, clear sheet of water, wooded to its very brink and winding its way far off to the south among luxuriantly wooded hills. No more ideal spot could be found to-day for quiet and peaceful meditation than this site. Perhaps the religious atmosphere of the adjoining church and college (of which this house was the parent) gives it one of its peculiar charms. The old house has been entirely changed within and its great rooms and halls cut up into small ones to serve as a dormitory for the students of the Seminary. It still possesses, however, a wonderful amount of dignity and impressiveness, and with its delightful surroundings strikes one immediately as a most appropriate homestead for the "first gentleman in the county."

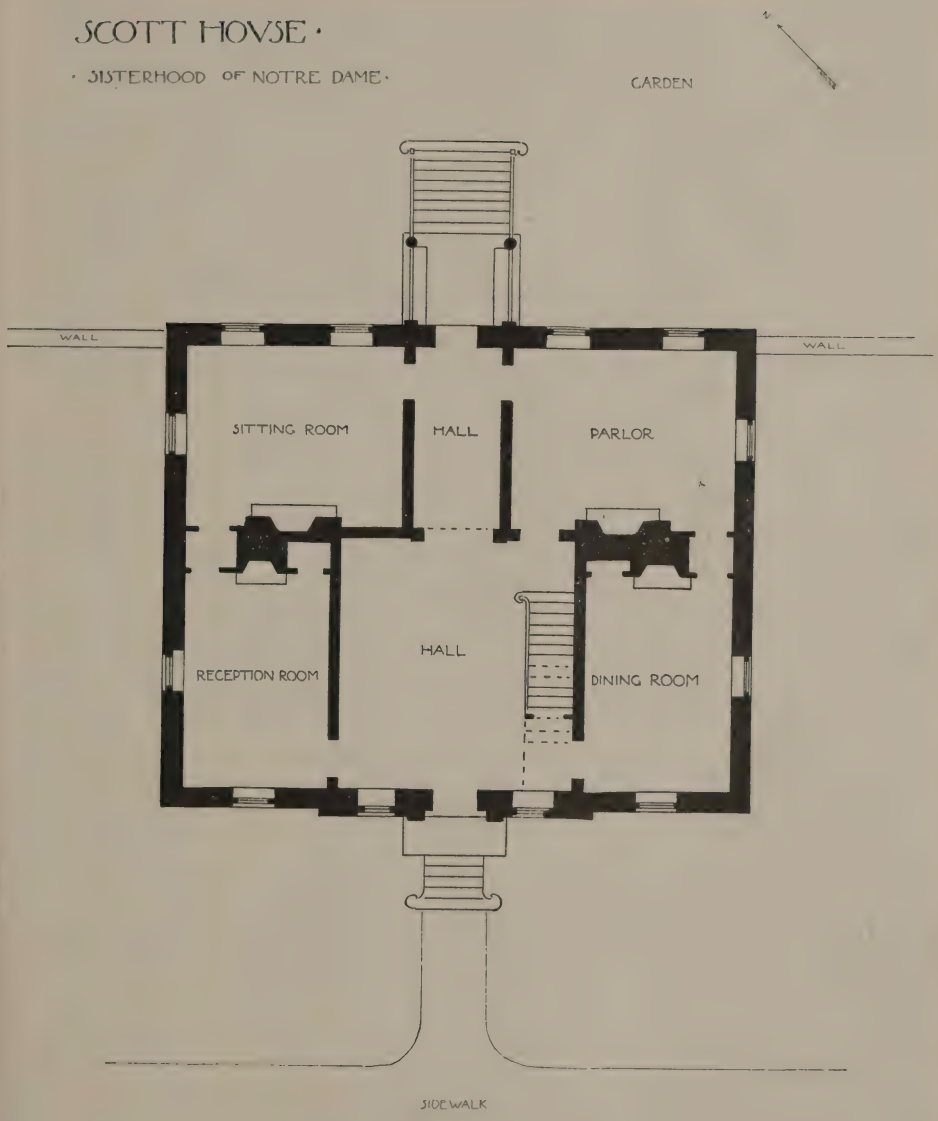
In one of its rooms, consecrated for divine service, the small band of Roman Catholics worshiped (before their first church was built), and from this little chapel the influence of that church was felt throughout the land and began the development which to-day has placed it, in point of numbers, in the first rank.

Not far from here and overlooking the harbor and the lower part of the city stand three massive dwellings in one block, and next to them a most charming example of Colonial work, with its wings detached from the main house and brought slightly forward. Their fronts touch the sidewalk, while at the rear the gardens fall in terraces to what was once the water's edge. The brickwork of this house is a splendid example of what one notices universally among the earlier buildings in Annapolis. The bricks generally are a very dark red, with occasional glazed or fine brick introduced to give more variety and character to the effect. They are much larger than the brick now in use, and are laid with headers only showing over an entire wall space. The mortar is laid in a narrow, rather deep joint, and is to-day harder than the brick itself.

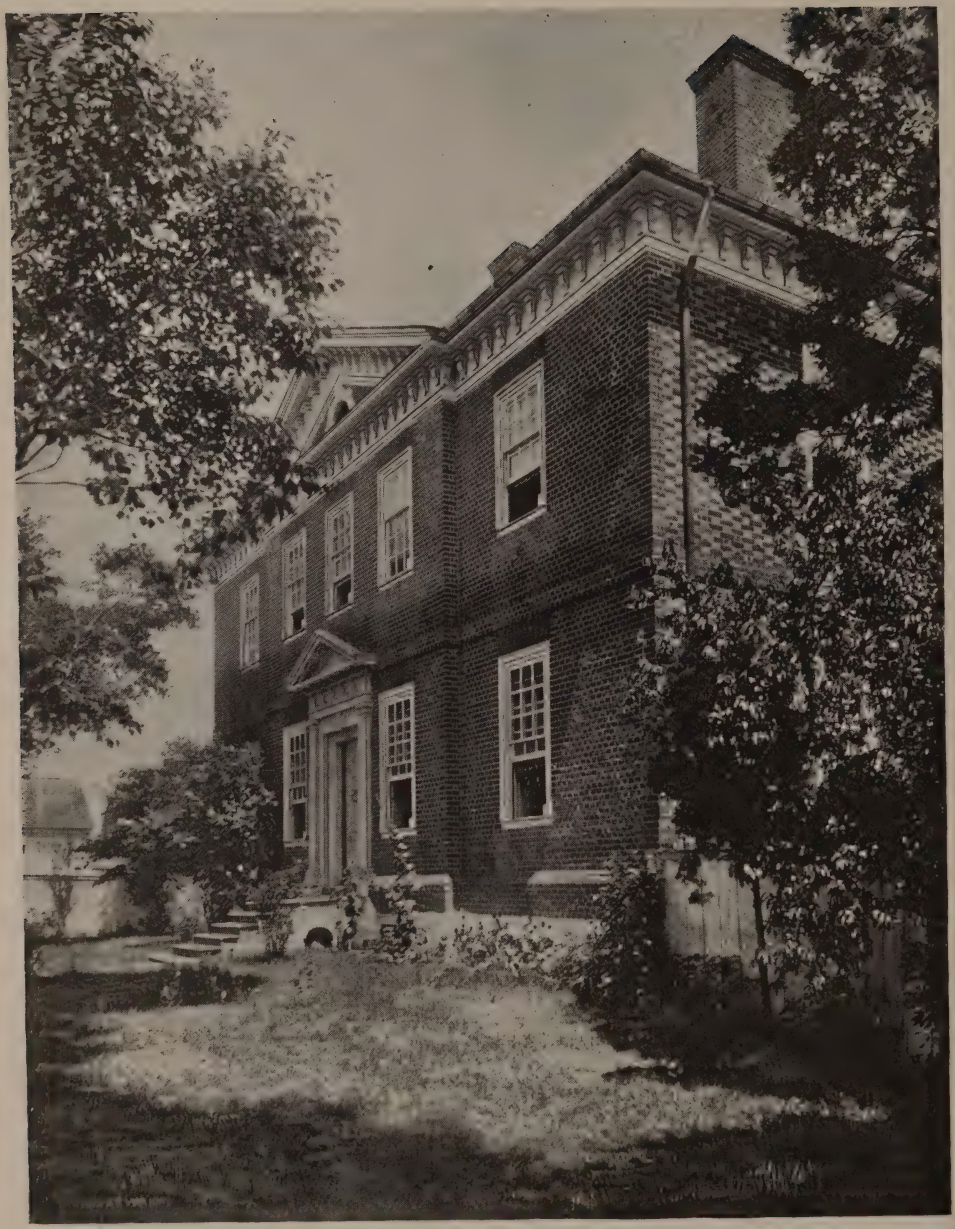
As we enter its large square hall we find a room opening on both sides, and two in front of us. The staircase is in a small hall by itself with an arch connecting the two. The staircase rail and balusters are of very dark mahogany and lead up to a well-lighted landing above. The drawing-room and dining-room are at the back, their windows overlooking the terrace-garden, the harbor and river with its high green banks beyond. To the north lies the city itself, with its dark red chimneys and brown roofs appearing here and there in a setting of green. The porch opens directly from the drawing-room, a feature which is almost universal among the houses of this date, and its old stone steps lead directly to the garden. This house was built about 1750 by John Ridout, and the three adjoining houses also for his three children. Such were the difficulties of transporting materials from England in those days that it is said that seven years were required to complete this one house.

Such monumental patience as this indicates must have deterred many contemporaries from sending to England for their materials, and must have stimulated home manufacture more than any amount of protective tariff could effect to-day. Much of the brick used in Annapolis evidently did come from the Mother Country before the colonists succeeded in producing from their own soil a substitute as good; but the interior woodwork was evidently done on the spot, as can be proved by the fact that old works upon architecture are now extant that were in use in the middle of the last century, from whose pages it is very evident that some of the designs for finish of certain houses were taken. These works were English* and possess copies of designs, among others, by Inigo Jones and his school of English Renaissance. The architect then was his own builder. He began his professional studies by being regularly apprenticed in England or in the province, and besides being proficient

*One of them is the "British architect or Builder's Treasury," by Abraham Swan, architect. London, MDCCVIII.


SCOTT HOUSE
SISTERHOOD OF NOTRE DAME
GARDEN
WALL
WALL
SITTING ROOM
HALL
PARLOR
HALL
RECEPTION ROOM
DINING ROOM
SIDEWALK

(See page 322.)



THE "SCOTT HOUSE."

Annapolis, Md.

(See page 322.)



Annapolis, Md.

REAR OF SCOTT HOUSE.

(See page 322.)

in drawing and perfectly familiar with his "orders," he had to undergo training in mason-work, carpentry and carving before he was considered properly qualified to practice. This latter requirement must have been most irksome and disagreeable to the high-bred youth of that day, who often had to live as well as work with the common workmen while they were undergoing this apprenticeship.

Of these houses the first that claims our attention is a most perfect place further up the "Spa" and adjoining "Carrollton." The house itself (built about 1750 by Dr. Upton Scott) is placed on the ridge of the high plateau overlooking the creek at a most beautiful point where it sweeps around the side and front of this estate and disappears towards the south. Terraces evidently extended from the front to the water, and at the rear a charming old-fashioned garden surrounded by a high brick wall now entirely covered with vines and creepers. This house is now owned by Sisters of Notre Dame, a Roman Catholic order, who have charge of the school connected with the adjoining church, and in whose care this old house has received the very best care and attention. But what a contrast do their serious, earnest faces and their sombre garments make with the brilliant costumes and merry groups of gay Annapolitans that so often in the old days were gathered here. The merry music of the dance has gone and in its place one hears at times the voices of the nuns intoning service in the chapel. Upon entering this house from the front through its great handsome doorway we find ourselves in a large square hall, with the staircase on the right and doors opening into three of the rooms adjoining. A narrower hall continues between the two rear rooms, that were probably sitting-room and parlor, to the rear porch and the garden. Unlike the majority of the houses here the kitchen is in the basement at the rear, and the wings are entirely detached from the main building. The woodwork in this house and particularly in the hall is elaborately carved. The architraves of the doors, the consoles under the staircase treads and the mouldings around the fire-places are beautifully and elaborately ornamented in more or less the same general detail which gives a unity of ideas to the whole.

Further up the "Spa" and on a line with the "Wolf House" was another, celebrated in its day, the "Tasker House," long since destroyed by fire; and nearly opposite its site across a "cove" and buried amongst the greenest foliage stands "Acton," the homestead of the Murrays, with its splendid old trees, hedges, flower garden, and lawn stretching in all directions. The flower garden itself, as we see to-day so often in England, is separated from the lawns by high hedges running down to the water's edge from the southern side of the house, and divided into beds by curiously-planned walks lined with box.

We have in the plan of this house the same general arrangement and number of rooms as we have seen before, but the drawing-room is much improved by a great bay which extends across the centre of the rear and opens upon the porch and the lawn stretching down to the water.

Returning to the centre of the city we pass the old churchyard where the first church, endowed by William III, stood in 1695, where the second, consecrated in 1792, remained until within our own day and then was totally destroyed by fire.

The story is told that the old bell in this church, given by Queen Anne and stamped with her name and the arms of her family, which had called worshippers together for over a century, rang out its own death knell when the fire reached the tower.

The walls of the present church covering the old foundations are already entirely enveloped in ivy and Virginia creeper. Below them still rest the remains of many of the old city's distinguished sons, and a few of the gravestones, with their coats of arms covering half of their surfaces, still remain in spite of the perils to which they have been subjected.

Looking to the north from the State House, and hidden among locusts,

RANDALL HOUSE



(See page 324.)

poplars and magnolia trees we see the "Randall House," erected about 1730 by Thos. Bordley. It stands in the midst of a charming old-fashioned garden with lawns in front and diverging walks behind lined with flower beds and high box borders, and possessing in its great stretch of front some of the most striking characteristics of an Annapolis home, besides the peculiarity of being in the centre of its grounds and not on the street. That part of the main house beyond the sitting-room has been added within the present generation (to take the place of a frame addition that was removed), but it so thoroughly carries out the characteristics of the plans of its day in its arrangement that no one would suspect that this later portion was not of the same date as the rest.

The front hall, as in the case of two other examples (the "Ridout" and "Brice" houses), is not on centre with the axis of the house, and the staircase rises directly from the entrance with a most charming rail, wainscot and balusters in French walnut or mahogany. The library is in the wing connecting with the parlor, and is placed a few feet below its level, forming a most interesting and attractive room. It opens upon the garden on one side and upon the conservatory on the other, and its ceiling follows the lines of the roof above, giving unusual height and a charming effect.

On the front of this house, and running its full length, once stood a row of columns supporting the projecting eaves and resting upon a long porch that had long ago disappeared and with it a charming façade, such as one always associates with the houses much further south than Maryland. To the north of these grounds and overlooking them from its high ridge and flanked by dormitories and professors' houses, stands a great square brick building, with brown stone quoins and belt courses with classic porches front and rear and surmounted by an octagonal cupola and an open circular belfry. This old building was erected in 1744 as an executive mansion for the Colonial Governors, but was never completed as such. When the governors of King William's School (the third oldest institution of learning in this country) decided to change its site, and its name to St. John's College, this building was selected for the purpose, and rearranged to meet its new requirements. Since then, dormitories and the houses of the president and the professors of the college have been added, giving to the whole a thoroughly dignified and attractive appearance. Facing the college campus, and opposite its northeastern boundary, is a delightful old Colonial house, quite unusual in plan and general appearance, standing back from two streets that meet here among splendid trees that look as if they had been left as guardians of its life and comfort.

This was the town residence of the celebrated Colonial Governor Ogle and was built by him in 1742.

The stable of this eccentric old gentleman was built at the corner and in front of his house as a mark of his devotion to the fine horses that he so dearly loved and to which he was wont to give such an extraordinary amount of personal attention.

Adjoining the Ogle place, and separated from it by a high brick wall, stands the home of Governor Lloyd, now called the "Chase House," and probably as noble a dwelling as this country has ever produced. Although among the last of the Colonial houses in Annapolis, dating from 1770, its superb massiveness, its color and its unusual proportions, together with the delightful simplicity and refinement of its details, place it in the first rank among the most successful productions of its kind. Its plan is simplicity itself, and its axes are preserved with the skill of a genuine "classicist." The whole effect of its interior bears witness to the fact that its owner fully understood the art of "good living" and of entertaining on a scale not common even in that day. Its long hall, the walls of which were recently hung with fine old family portraits, runs through the centre of the building and opens into each of the rooms and passages that flank it.

Opposite the entrance and in the centre of the hall rises the staircase to a landing under the broad window so-



Annapolis, Md.

OLD GOVERNOR'S HOUSE.—EXTENSION AT REAR, MODERN.

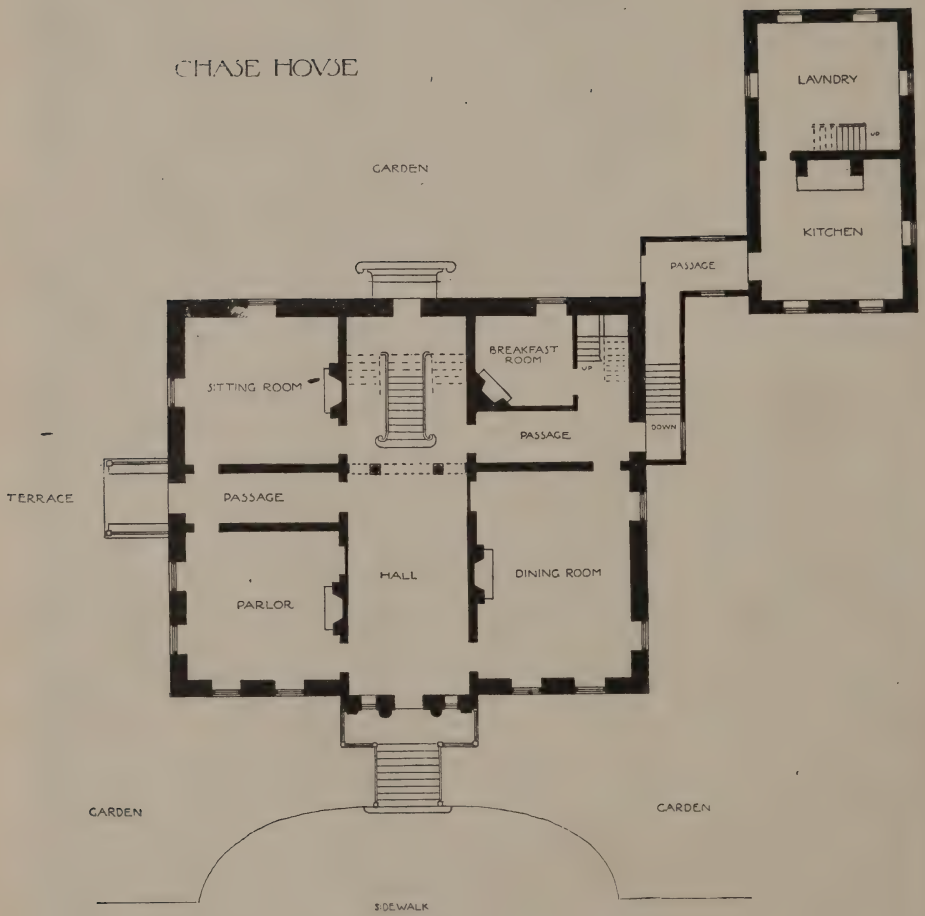
(See page 324.)



"OGLE HOUSE."



BIRD'S-EYE VIEW OF ANNAPOLIS, MD.


CHASE HOUSE
LAUNDRY
UP
KITCHEN
GARDEN
PASSAGE
BREAKFAST ROOM
UP
SITTING ROOM
PASSAGE
DOWN
TERRACE
PASSAGE
HALL
DINING ROOM
PARLOR
GARDEN
GARDEN
SIDEWALK

(See page 324.)

characteristic in detail and outline of the houses of that date. From this landing it divides and rises on the right and left to a charming hall above, with its beautiful woodwork and ceiling. It will be noticed that the steps themselves are solid wood with the inner edge resting on the step below and its end against the wall securely braced. This is not an uncommon feature of the staircases here. All the doors in the first story are of the choicest mahogany, and the latches and rings of wrought silver. The parlor on the left has a beautifully refined marble mantel and the ceiling is very effectively worked in stucco.

The dining-room, however, on the right is the finest room by far, and displays much the greater share of decoration in wood carving that this old house has to show. The passage adjoining it has been used as a pantry of late, but such modern necessities were not appreciated or desired a hundred and fifty years ago. For it is a remarkable fact that among all the houses in Annapolis there is not a pantry in connection with the dining-room, and the only store rooms that exist are near the kitchen or in the basement. Probably the quantity of old silver and glass used then was kept exposed or under cover in the great mahogany cases and cupboards that still remain in some of our dining-rooms, or in small closets that we are apt to find adjoining them.

The facilities for prompt service in those days (in spite of the number of attendants) must have been sorely strained when we consider the usual distance between dining-room and kitchen, as well as that long passage that seems to be a most unnecessarily awkward means of connection between the two. But to return to the "Chase House." One of its most charming features is the passage between the parlor and sitting-room that leads out upon a porch at the south side of the house overlooking the garden.

In the basement of this house and below the hall is the great wine cellar with a barrel vault of brick above running the full depth of the house. Another of the striking peculiarities of this house is that it has three stories above its basement instead of two, which is the universal rule, and also that it possesses a *rear staircase*, a sign of great extravagance or else of a decided change in the long-established domestic arrangements common *in that* day. From the windows of the upper stories the whole harbor can be seen and the long stretch of bay beyond. On the opposite side of the street stands the "Harwood House," also called the "Lockerman House," built in 1770, and made purposely low that it might intercept as little as possible the water view that their opposite neighbors so greatly prized. The general effect of this house with its outstretching wings is most pleasing and bears testimony in its beautiful lines and proportions to the skill of some thoroughly well-educated and sensitive designer.

The entrance doorway is a gem of its kind and its effect with the two windows above, each as perfect in itself as the doorway, impress one as most unusual. Its narrow central hall leads directly to the parlor at the rear, a lovely room overlooking the garden and, as in the case of so many others, opening directly upon it down the old stone steps. The staircase is in a separate hall to the right and therefore combines all the usefulness of two.

In the second story is the most delightful feature in the house. This is a beautiful room, elaborately decorated and extending across the entire rear above the parlor and dining-room. It was evidently used as the ball-room.

The wing and "lobby" on the left do not seem to have been connected with the main house. The right wing contains the kitchen, laundry and servants' sleeping rooms. The garden at the rear falls gradually to the east. The old box borders of the flower-beds have long since overgrown the walks which they once followed, and are now great hedges, indicating still the landscape gardener's plan originally in existence.

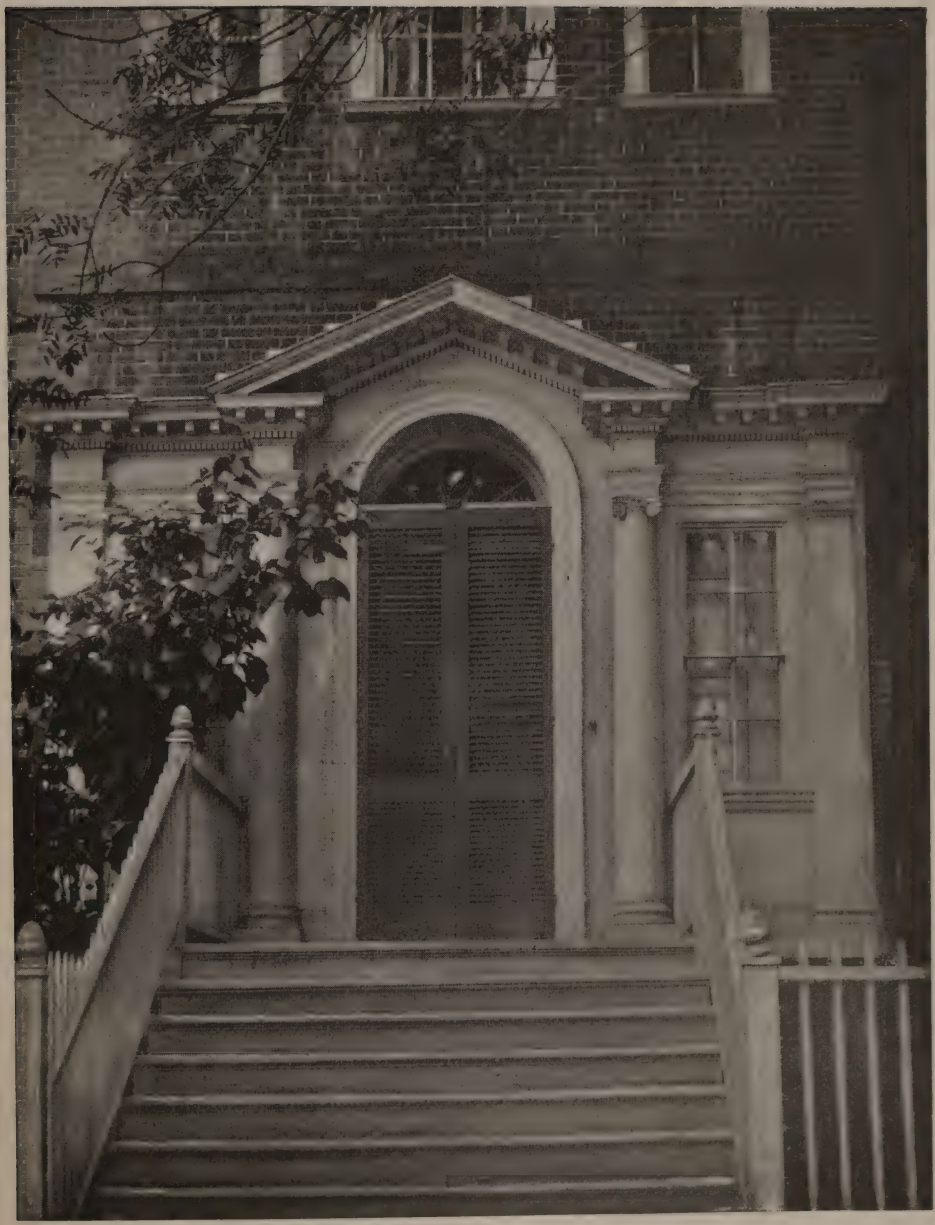
Across the low ground that separates them, we see two splendid specimens of Annapolitan architecture, with their high unbroken roofs and outstretched wings. These are the "Brice House,'



Annapolis, Md.

FRONT OF CHASE HOUSE.

(See page 324.)



Annapolis, Md. DOORWAY OF CHASE HOUSE.

(See page 329.)



Annapolis, Md.

THE HALL OF CHASE HOUSE.

(See page 329.)



Annapolis, Md.

STAIRCASE IN CHASE HOUSE.

(See page 329.)



REAR VIEW OF CHASE HOUSE FROM GARDEN.

and the "Paca House" (now the "Swann House)."

They were both built about 1740, and stand quite close together upon two intersecting streets (Prince George and East). The ground behind them falls rapidly to what was once an inlet from the harbor, and the boundary of the property in the water is marked by a brick wall upwards of 12 feet in height and pierced by narrow slits that would have given in a mediæval fortress perfect protection to crossbowmen.

The Brice House has many beautiful features within. Its exterior is exceedingly dignified, but rather severe. The entrance hall is large and nearly square, with its elaborate mahogany staircase rising to the left. The drawing-room is unusually beautiful and commands an outlook of the entire garden. Its mantel and cornice are well known to most of the architects in the East, and is much admired, though few probably know where it belongs. The walls of this room, as in the case of so many of the old houses here, are paneled in plaster. The sitting-room adjoining has a secret staircase in the wall connecting it with the bedroom above.

We have now examined perhaps the most characteristic private dwellings of Annapolis, although hardly half of their full number; and as a proper "winding up" of the subject we will make our way down to the Naval Academy grounds and, near the lower gate, see a splendid old, dignified mass of brick-work that looks as if it had been built to outlive all time. This was the executive mansion of the Governers of Maryland from 1753 to 1866, and no Governor in America had a more charming home or more delightful surroundings, overlooking the harbor from its rear, with a fine sweep of lawn reaching down to the water and stretching along the harbor's front as far as the mouth of the broad Severn.

The front has a broad pediment above its central entrance, resembling closely that of the "Harwood House." From its rear a great bay projects, running up through the roof. The central hall is flanked by rooms that might have been used for the official business of the Governor, or as reception rooms. Before you is the room that was the great drawing-room or State dining room, running across the larger portion of the rear with its inviting bay, its porch and its charming view over lawns and water.

The staircase hall was entered from without by a side porch, which was probably used only by the family of the Governor. Like the staircases in the "Ogle House" and in the "Chase House" the steps (riser and tread) are solid wood.

Another conspicuous work of an earlier date is the old "City Hotel" where Washington stopped when he visited Annapolis officially, and where distinguished men from home and abroad were received with a hospitality that was celebrated far and wide. Wainscoted from floor to ceiling, with deep window seats and delicate mouldings, those old rooms still possess convincing signs of the good taste and careful design that had produced them, and which seems to have been so universal among the architects of that time.

Thus we have sketched the history and architecture of these interesting people as well as their general mode of life. With the breaking out of the Revolution the whole character of this old city of Queen Anne underwent an entire change, and its days as the "Social Athens of America" came to their end. The breaking up of families, the loss of that stimulant that the gay followers of the British Governors and their garrison had given to the social life of the place; and last but more important still the loss of her commercial supremacy and the rapid growth of Baltimore, all combined to take from her those characteristics that had made her so famous under the old regime. Annapolis belonged distinctly to the earlier epoch of this country's history, and with the birth of the new century she settled down into comparative obscurity and only retains to-day the suggestions of her former character.

Such a hurried and imperfect description of a place possessing treasures of uncommon historical interest and of architectural skill is certainly quite un-



Annapolis, Md.

BRICE HOUSE.

(See page 335.)



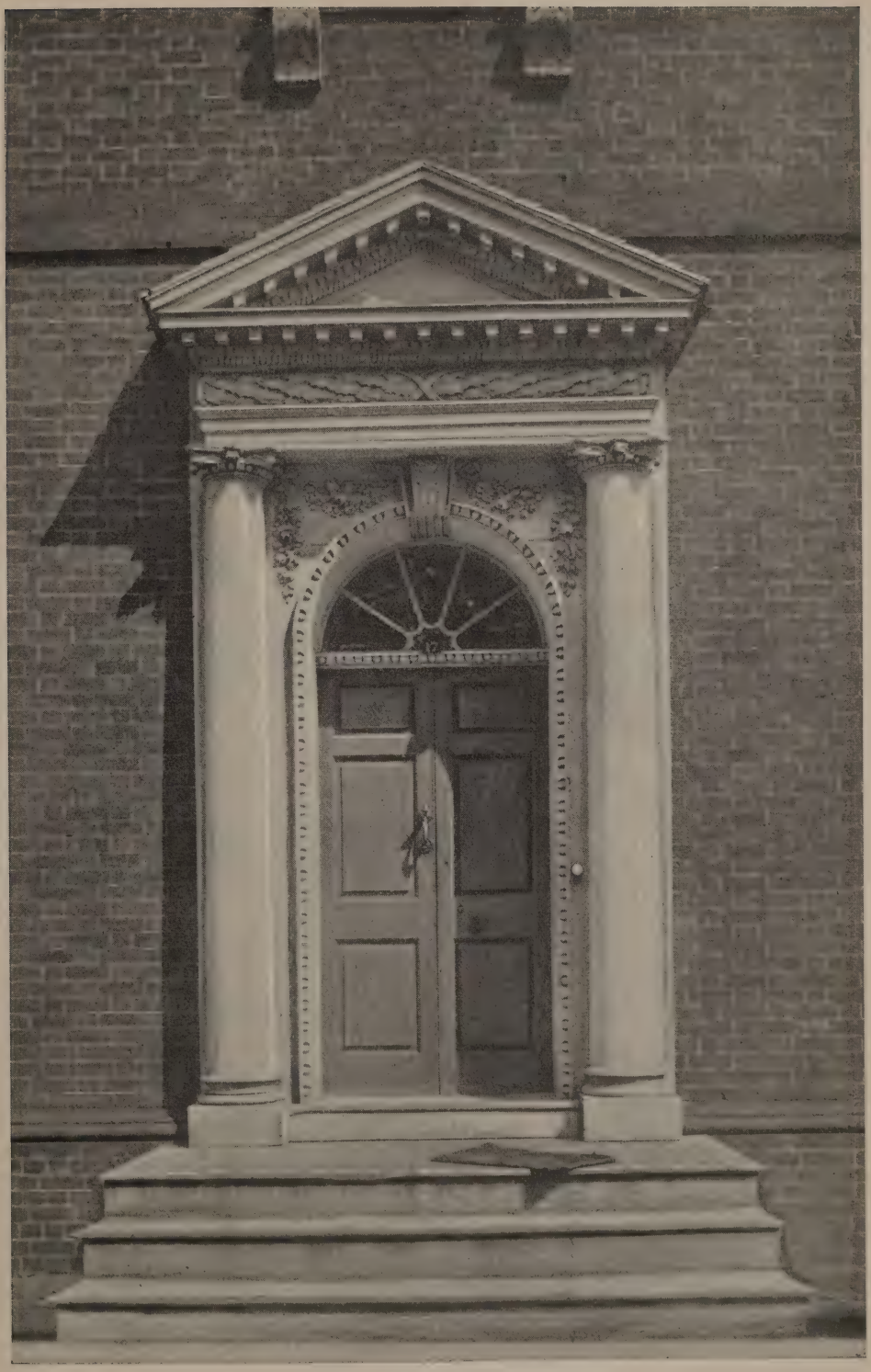
Annapolis Md. MANTEL IN DRAWING ROOM OF BRICE HOUSE.

(See page 335.)



Annapolis, Md.

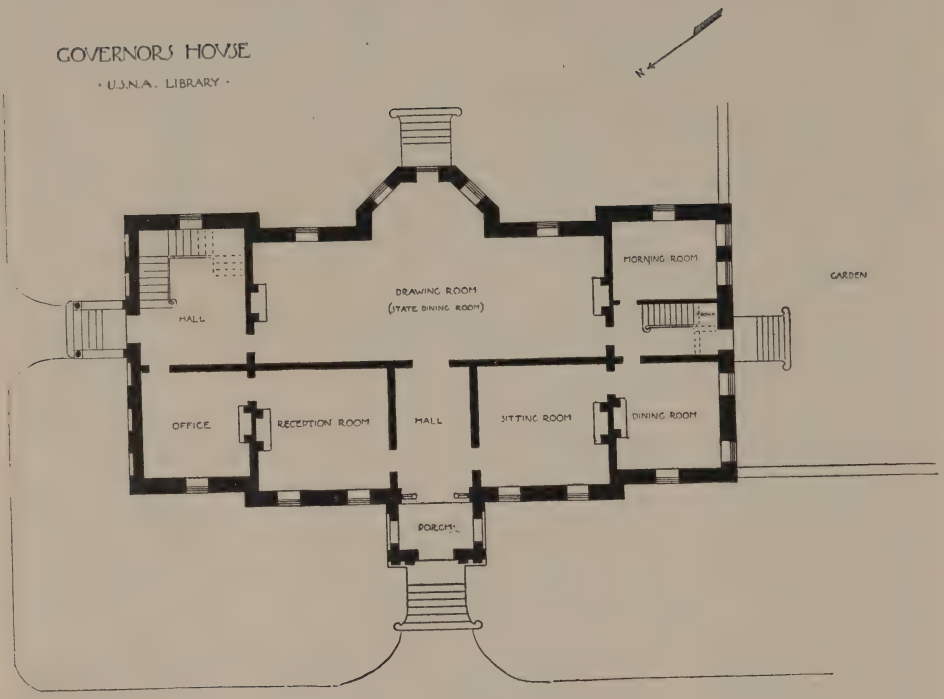
"HARWOOD HOUSE."



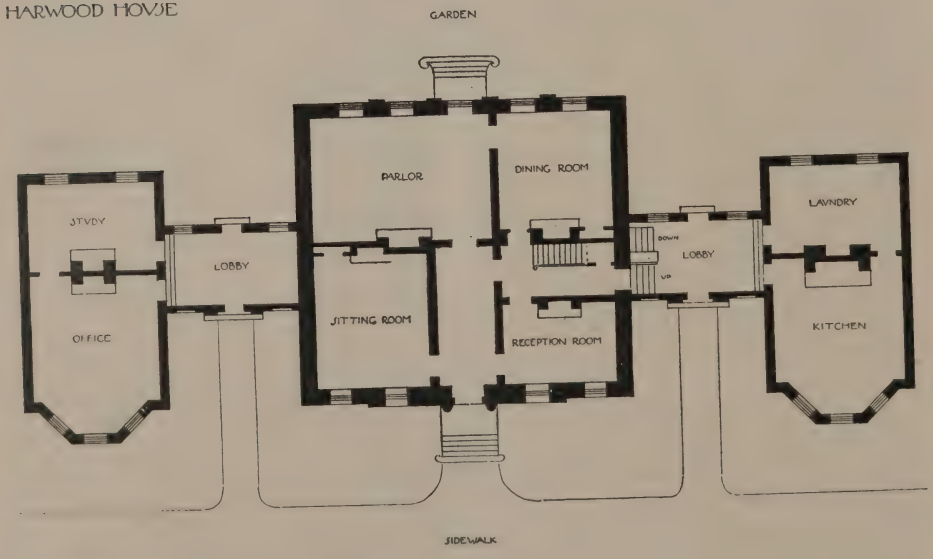
DOORWAY OF HARWOOD HOUSE.

GOVERNORS HOUSE

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HARWOOD HOUSE





Near Annapolis, Md. WHITE HALL.



Annapolis, Md.

WELCH HOUSE.

worthy of the subject; but much has to be omitted in an article of these dimensions, and a mere outline of the whole, such as this, can readily be supplemented by any one desiring to make a careful study of the subject in detail.

Annapolis stands to-day quite as unique in her character and general appearance as she did when in her prime, years before the Revolution. Affected in only a small degree by the changes that a century has wrought upon her former rivals, by that irresistible march of progress and of improvement that characterizes everywhere, in the "Old World" as well as in the "New," the spirit of the Nineteenth Century.

Cultivated and charming homes still exist there as witnesses of the traditions and manner of life so celebrated there, and the old foundations in brick and stone that were laid generations ago, still stand firm and unchanged as monuments to her former life and character.

Annapolis may still be called the "finished city," and those who love her quaint old streets, her well-shaded gardens and her dark, red walls of brick, can see in them something which no other city in this land affords, and find there a link of exquisite workmanship binding the hurrying business life of to-day with the old-fashioned peace and cultivation of Colonial Maryland.

T. Henry Randall.





Dunwoodie, N. Y. CATHOLIC SEMINARY, Wm Schickel & Co., Architects.

SUNSET OF THE AGES.

Sad Souls, what seek ye there
Amid the sunset light?
The great world rolling onward
Brings the night;
The visions that ye see beyond the golden bars
Are further than the stars.

Sad Souls, what hear ye there?
What voices whisper cheer?
What message have the dead
For ye to hear?

Learn not again old prophecies fulfilled,
Nor strive to sing the songs the Silence stilled,
Pluck not the withered flower,
Mend not the broken lyre,
Strive not to warm the soul
Before the blackened fire,
Faint not, nor weep, nor think the grave
Holds anything 'twere well to save.

For larger prophecies shall yet be born
Of those fulfilled,
And vaster melodies shall yet arise
From old songs stilled,
Dead flowers shall blossom yet
On paths untrod,
And Faith shall reach the light
That shines 'round God.

Nothing the soul hath felt was vain—
No faith, no hope, no sorrow, no pain.

'Tis the tears of men that water
The fairest flower that blows—
Out of the mire of human life
The lily Perfection grows.

The soft south wind is coming,
Ye Souls that yearn and faint;
The Dove of Love is hastening
To answer her mate's complaint.

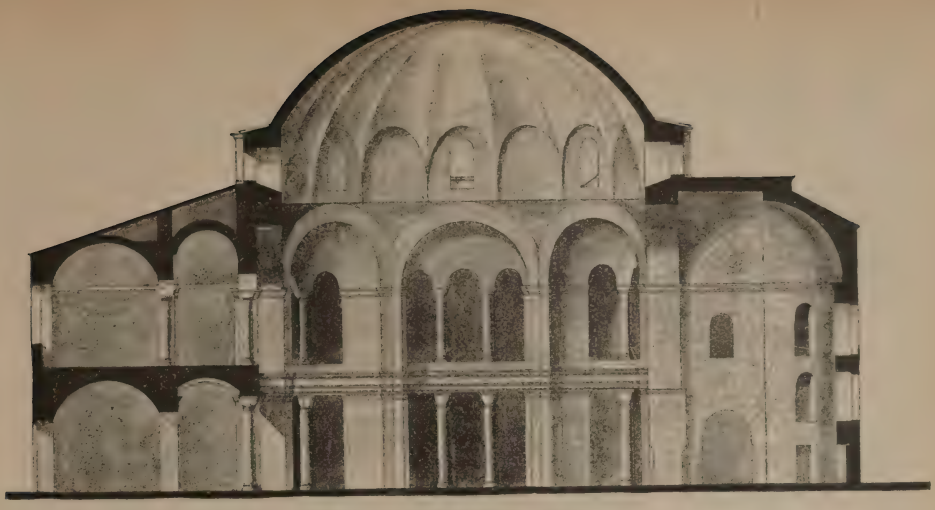
See, with their golden sandals,
Come trooping the joyous Hours,
And Faith and Hope are blossoming
Into everlasting flowers.

Lo! The breath of the larger life shall come on the air to ye,
As the soft wind brings on its dewy wings the odor of the sea.

Harry W. Desmond.



MORSE HALL, Professor C. Francis Osborne, Architect.



SECTION OF ST. SERGIUS, CONSTANTINOPLE.

Byzantine Architecture.—Part III.

(CONTINUED.)

EVEN if we had not some of the important buildings erected in the time of Constantine, we could form a shrewd guess of what they were like, for we roughly know what there was in Rome up to his time, and he began to reign but eight years (313) after the abdication of Diocletian (305), for we may call him reigning after the defeat of Maxentius in 313, and when he issued the edict giving liberty of public worship to the Christians. Diocletian's Palace at Spalato, and his Baths at Rome still remain, and Constantine's architects could only have altered a little, or improved a little, on what had immediately preceded them. We are also told that at Constantinople Constantine had palaces built like those in Rome and its vicinity, to induce the Roman nobility to come and stay there. We know that he gave one of the private basilicas at Rome for the Church of San John Lateran, and that he had the original basilica of St. Peter's built. Vitruvius tells us what the basilica was like (Vit., Lib. V., cap. i., par. 4), and that the private basilica was like it (Vit., Lib. VI., cap. v., par. 2); he began to write when the Republic still nominally existed, and important decisions had to be given by able Senators on what we should now call international questions. The private basilicas were then arbitration-rooms, where numerous deputations probably had to be seated, crowds of witnesses, and possibly many assessors; and they were also used for political meetings, but in Constantine's time I fancy they were a sort of music-hall. The Lateran Basilica was originally built by Lateranus, a senator of Nero's days. Besides the basilicas Constantine turned into churches or had built, he had other churches constructed after the fashion of the Circular Temple of Portunus at Ostia, and it is believed others of an octagonal shape, after the manner of the Golden Temple of Antioch. We also know that most of his buildings at Constantinople were roofed with wood, and so badly built that when they were not burnt they fell, or had to be pulled down; that he was so short of architects that he granted immunities to those who would allow their



Corner Astor and Schiller streets, Chicago.

RESIDENCE OF JAMES CHARNLEY, ESQ.,

Adler & Sullivan, Architects.



Genoa, Italy. GROTTO OF PODESTAT PALACE.

sons to be brought up to that profession, and bestowed a salary on the students, and the edict for this applied to Italy and a great part of Northern Africa. The prevalence of building in his new capital, and in several parts of the empire, must have given, too, a great impetus to the immigration of architects into Constantinople, as well as into other cities where large building operations were being carried on.

We also know that the art of figure sculpture was at so low an ebb that statues from existing buildings were transferred to his triumphal arch in Rome, because there were no sculptors capable of doing them. We believe that there was not much change in the forms of churches for more than a century after his death, although the bema or sanctuary was made much deeper, and, perhaps, also the form of the Greek cross or the Tau was more insisted on, though it is stated that some of the civil basilicas at Rome had a transept in front of the apse which gives the Tau; this form is seen at the basilicas of St. Paul, outside the wall, and St. Mary the Greater, at Rome. The present church of St. Demetrius, at Salonica, is said to have been built in 412–413. The Tau is made in this basilica by two inclosures in the aisles, just in front of the apse and at a higher level—*i. e.*, at the level of the paving of the bema, which was always raised a step. The semi-circular atrium to St. Demetrius' tomb is domed after the fashion of the Temple of Jupiter at Diocletian's Palace, only here it was made ornamental, and evidently was meant to be seen, apparently pointing to a later date. Still an important step had been taken in regard to capitals, for there are some at St. Demetrius which we now look on as purely Byzantine. It is not, however, until we come to the reign of Justinian that we have any exact dates to rely on after the date of Constantine. Although archæology is not of any direct use to architecture, except where it is all the architecture there is, it is of the utmost importance that we should know the dates of buildings when we want to trace their influence on the plan, the construction, or the ornamentation of subsequent ones. Procopius has given us a list of some of the buildings erected by Justinian's order to within ten years of his death, and this includes St. Sergius and Bacchus at Constantinople (see lithograph), called "the little Sta. Sophia," whose interior is very similar to San Vitale at Ravenna. At first sight, the upper part of the three flat sides of the octagon are scarcely noticed to be different from the apses. San Vitale is believed to have been begun in the year before Justinian was associated with his uncle Justin as joint Emperor, and that when he was sole Emperor he and Theodora contributed funds for its completion; it is also said to have been designed on the plan of Constantine's Golden Temple at Antioch. I must tell you that the history of Byzantine architecture is in a perfect state of chaos as far as dates are concerned, and when we have exhausted Procopius' list of the buildings, we can only make guesses at the dates of churches from this arrangement, construction or ornamentation.

A list of the buildings erected by Constantine's order is given, I believe, by Eusebius, and in Ciampini are illustrations of the ecclesiastical buildings erected in his reign. Our Archæological School at Athens is now mainly devoting itself to the study of Byzantine architecture; its students, Messrs. Schultz and Barnsley, have for some time past been making drawings of the remaining Byzantine churches in Athens, Epirus, Macedonia, etc., including their mosaics; and Mr. Gardiner, the head of the school, has been assisting them in the deciphering of inscriptions.

In the early Christian Church the question was, where it could get a place to meet in without molestation, and we know that the catacombs of Rome were used for that purpose, and there was no thought then about orientation. As late as St. Augustine, who was born in the fourth and died in the fifth century, all that he asked for was a square room like the Ark of Noah, with a recess for the altar; but as early as Clement, at the end of the first century, the new churches were arranged, when they could be, like the temples are recommended to be by

Vitruvius, with the entrance to the east. St. John Lateran and St. Peter's are so placed; the priest at the altar stood facing the congregation, and the women were put in the aisle to the left of the priest, or north side, and the men to the right or south side. When the orientation was changed in the fifth century, and the altar was at the east end, the priest turned his back on the congregation, and though his hands were the same way as before, the right and left of the altar remained in their original position. This has introduced great confusion. S. Apollinare Nuovo, at Ravenna, is oriented with its front to the west and the altar to the east; but it is evident that the women were on the south side and the men on the north, for their attention must have been directed to the examples of their own sex, and the procession of virgins is on the north and that of the saints on the south side of the nave, *i. e.*, to the old right and left of the altar. The ambos were retained in the old places after the change of orientation, the Gospels being read from the left, or north ambo, and the Epistles from the right or south. I should here say that the clergy had usurped the nave for its own use, and the congregation were left in the aisles, the nave being fenced off by a low balustrade; where Christian churches have been converted into mosques these balustrades are often found used for paving. Besides these arrangements, there was an atrium in front of the church with an impluvium, a labrum, a fountain or a well in the middle for ablution, and a narthex at the entrance of the church for catechumens and penitents.

As the population gradually became Christian, the atrium, which was partly used for sheltering candidates for baptism and partly for ablution, was only needed for the second purpose, and began to fall into disuse; and when, in the seventh century, it was found that the Moslem faith prescribed ablution, it was given up altogether in the Christian Church. Extreme personal uncleanness then became almost synonymous with sanctity—it showed, at least, the Christian's repugnance to this injunction of the Koran. We read of monks who were so holy that they had never been washed all over since they were baptised. The holy water stoup in Roman churches is said to be a relic of pristine ablution. In the early churches the baptistery was a separate building, outside the church; but eventually adult baptism was given up, and the font was admitted into the church. The altar originally stood just in front of the apse, and the apse itself was used for the clergy, and was called the Presbytery, with a seat all round it called the consistorium, and with a higher seat in the middle for the bishop; this arrangement may still be seen at St. Fosca, at Torcello, near Venice, and I believe is still used in the Orthodox or Greek Church. In the Orthodox Church the altar was, and is still, merely a table with a crucifix on it; but in the Papal or Western Church, it became the martyrium, and was erected over the sarcophagus of a saint, or over the grave where his remains,, bones, or fragments were buried. Eventually each aisle was consecrated as a separate church, and each had a little apse at the east end. The Basilica of San Pietro ad Vincula at Rome, said to have been built in 442, is, I believe, the first church in which this feature is seen, but I fancy if it were examined it would be found to be a much later alteration. The use of three apses became, and is now, universal in the Orthodox Church, but it does not exist at Sta. Sophia, at Constantinople, built in 532. It is, perhaps, not to be looked for in circular and octagnal churches, but it does not exist in the Basilica of San Demetrius at Salonica, though at the east end of its north aisle there is a little chapel with the three apses (which I could not get into), and there is only one little apse at the east end of the north aisle, besides the great central apse at the Great St. Mary's, now called Eski Djouma, at Salonica—possibly a later addition; nor does this feature occur at St. Irene, St. John Studios, nor at the Kalender Mosque at Constantinople, so that if we are quite sure these small apses—the French call them absidioles—have not been added subsequently, it gives us some idea of the

date of the church. The church at Dana, on the Euphrates, said to be built in Justinian's time, has only one, and not three apses, although it has a nave and two aisles.

It is, perhaps, as well to say here that Christian churches, after Constantine's edict, possessed the right of sanctuary, and I was told by a member of the Orthodox Church that the iconostasis was adopted for this reason—that robbers, thieves, and murderers, when pursued, were accustomed to rush into a church and cling to the altar. To prevent this abuse the altar was protected by the screen and doors, called the iconostasis, so that the sanctuary could not be obtained until the priest was satisfied that the claimant deserved the privilege.

The apse was originally without light, and was only lit from the nave or transepts. Justinian unfortunately had a dream that at Sta. Sophia it was to have three windows, though before his time windows had been put in the apses.

Since the Marquis de Vogüé published his work on Central Syria, great attention has been given to the buildings he found there, and to their influence on Eastern and Western architecture. These buildings of Central Syria, whether lay or ecclesiastical, were of stone, and most of their floors and ceilings were formed of stone slabs carried by arches, the roofs being mainly of concrete, though there are the ruins of churches that once had timber roofs; in short, we may say that where forests were at hand the architects used timber; but where no timber was to be had they made shift with stone, just as at Babylon they used burnt brick.

The Pretorium at Mousmieh is supposed to have been one type for early churches. This building consists of an open portico in front, with a nearly square chamber behind it, divided into a wide central nave and two narrow aisles. The nave is formed by four detached and four attached columns, each aisle by four attached columns, and those of one side of the nave; the central square of the nave is formed by arches resting on the four detached columns, and has over it a four-sided groined dome, of which only fragments remain. The base of this dome was abutted by four semi-circular vaults. Beyond the end of the central nave is an apse, and a small, square chamber at the end of each aisle. This building is said to have been erected between 161 and 169, in the days of Marcus Aurelius and Lucius Verus, and is consequently Roman. A great number of Christian churches have also been found, but there is very little external evidence to show their date. One little chapel at Omm-es-Zeitoun, built in the year 282—*i. e.*, before the days of Constantine—was domed on a square plan, but the circle is obtained from the square by corbelling at the angles, and not by pendentives.

It is worth noticing that though the Roman Empire, after the loss of the western part, extended over the exarchate of Ravenna, Asia Minor, Syria, Palestine, Egypt, and a part of the north littoral of Africa, till the invasion of Syria by the Moslems in the reign of Heraclius (634 A. D.), yet there seems to have been no uniformity of style or method of building. Special local schools seemed to have existed, that produced special forms of churches, partly influenced by the materials at hand, and partly by the existing types. In 515 or 516, the baptistery of St. George at Ezra was built, an oblong-square building, consisting of two concentric octagons, with two vestries and an apse, wholely built of squared stone, the inner octagon being domed over in rubble with an oviform dome, circular on plan like the Persian domes; a very similar baptistery, cathedral, or church is found at Bozrah, in the Hauran, said to be of the year 512, or preceding that of St. George of Ezra, only circular instead of octagonal in plan. Some believe that the baptisteries or churches of this shape were built after the fashion of the Holy Sepulchre at Jerusalem. This was built by the orders of Constantine in 326, and was destroyed by Chosroes II., the king of Persia, in 614, some twenty years before the Arab invasion. The controversies on the shape and position of the Holy Sepulchre still continue, so I will leave the subject alone.

I may say that most of the Syrian churches had but one apse, and mostly two square chambers on each side like those of the Prætorium at Mousmieh, and that the basilica at Behio (Central Syria) has a square apse. These Syrian buildings from 330 to 635 are technically Byzantine, but have not much resemblance to those built elsewhere.

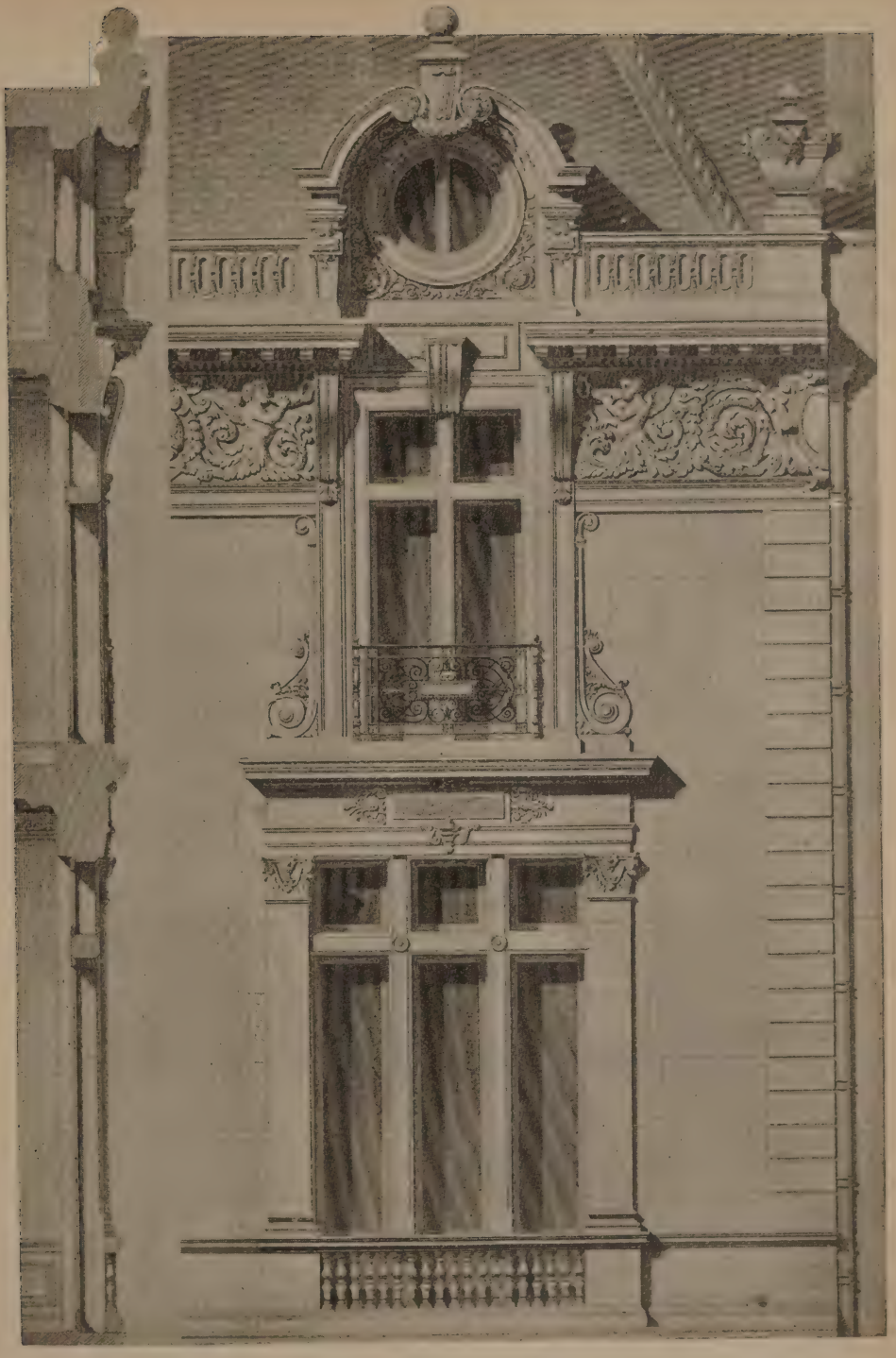
We must believe that the numerous schools of architecture started by Constantine had great influence on architecture, and must have made the architects more scientific; we must also recollect that there had been a greater and greater inclination at Rome to make public buildings uninflammable by vaulting and doming. The baths had all their halls or chambers vaulted or domed, and the basilica of Maxentius finished by Constantine was wholly vaulted and domed. We also know that building gradually became more scientific, for there was a gradual diminution in the ratio of the supports to the total area, for while the ratio of Caracalla's baths is .176, that of Diocletian's is .167, and the Basilica of Maxentius .127. Still, if we are to believe Œlius Spartianus, who lived about 297, in the days of Maximinianus and Constantius the Green, the architects had in certain respects fallen off in skill, for he says they confessed they were unable to rival the solar cell of Caracalla's Baths. I mention this prevalence of incombustible structures at Rome because so many of Constantine's buildings at Constantinople appear to have been roofed with wood, and the only reason that can be assigned for this is his haste and the want of skilled architects. Two processes seem to have been going on between the time of Constantine's brief (334 A. D.) for starting architectural schools, and the accession of Justinian in 527 A. D., namely, the Church seems to have been settling the best form of building for its ritual while the architects were perfecting themselves in domical construction and its abutments, and they were learning how much piers of brick and stone and monolithic columns of marble would carry. The octagonal church at San Vitale at Ravenna is said to have been founded by Ecclesius in 526, the year Theodoric the Great died, and consecrated by Maximianus, the Archbishop of Ravenna, in 547, eight years after the taking of Ravenna by Belisarius; the Emperor Justinian and Theodora are said to have been at its opening; it is very similar in plan to Minerva Medica at Rome, but it is said to have been built after the model of Constantine's Golden Temple at Antioch. It consisted of an oblong narthex, two stories high, flanked by two round towers containing staircases; for the long narthex set askew, and now I believe pulled down, is said to have been modern. The church is an octagon about 118 ft. across. Inside the external octagon is another concentric to it which supports the dome, about 50 ft. in diameter, with seven of the sides of the octagon formed into semi-circular apses, two stories high, and each supported by a triple arcade with two columns on each story. The seven openings have semi-circular arches at the level of the roof of the gallery, the eighth side forms the sanctuary, with a projecting apse at its end, the triumphal or sanctuary arch rises to the height of the arches over the apses, and on either side of the sanctuary are two staircases, and beyond them two circular vestries or chapels. The space between the outer and inner octagons form the aisles, and over these are galleries—one side at least was originally meant for the women, if not both. The octagon sides run up and are brought into the circle by small pendentives, from which a hemispherical dome rises, roofed outside with a hipped timber roof; the bottom of the dome is pierced with eight two-light windows. The arch to the sanctuary runs up the two stories, and just above it the sanctuary roof is groined as far as the apse, which is domed over at a height that will allow of a window over it. The parts to the north and south, between the arch and the apse, have three-light openings in two stories on each side. The aisles have barrelled vaults, into which the openings of the outer windows and the arches of the seven apses groin. The walls of the aisles are cased with marble in panels; these panels are streaked in red and white, and believed by Mr.

Brindley to be Rosso Antico and are formed of slabs in two or four pieces so as to make a pattern.

On the sides of the triumphal or sanctuary arches are fine Classic bas-reliefs of Cupids, one with a trident (engraved on plate 148 of Moses Vases, 4to, London, 1814), and are said to have been taken from a temple of Neptune, for San Vitale is said to have been built on the site of a temple to that god. There are green porphyry pilasters imbedded amongst the marble linings of the lower aisles, and a superb circular piece of opus Alexandrinum of red porphyry inlaid with mother-o'-pearl, giallo antico, and fine stones of red, green and blue. The whole of the sanctuary is covered with superb mosaic; two panels at the back of the altar represent, on the right, Justinian with his guards and officers; and on the left side, Theodora about entering the Church of San Vitale. She is sumptuously dressed, and has a robe of the Imperial purple embroidered in gold at the bottom as a border, with the adoration of the Magi. The groined vault over the altar has the most beautiful ornamental mosaic I have ever seen. All the columns have carved blocks over their capitals. Many of the caps are Byzantine; the upper blocks are in some cases carved with a cross and two lambs. Procopius tells us that the churches of SS. Sergius and Bacchus, at Constantinople, were built by Justinian. One was basilica shaped and has been destroyed, the other consists of an open Turkish porch, a narthex, and the church with a projecting apse. The church itself is an irregular oblong square on the skew, about 95 ft. by 112 ft. with the narthex; it has an octagonal centre; the outer oblong square is made into an irregular octagon by four large niches in the angles, the seven sides of the inner octagon are treated as follows: The side opposite the entrance has a triple opening with two columns, and this is repeated on the two other square sides, the diagonal sides have semi-circular apses, also supported by two columns, and the whole of the ground-floor has an entablature. The eighth side is occupied by the sanctuary, with a semi-circular apse at the end, the arch of which goes up to the springing of the dome. The first floor over the aisles is much higher than the ground story, and is treated in the same way, only the triple openings are arcaded, and seven semi-circular arches rising from the level of the caps of the columns connect the whole. Between these arches are the spherical pendentives, supporting a semi-circular dome, fluted with sixteen flutes; each flute dies against the vertical wall, and in each alternate arch so formed is a single window. The upper gallery goes over the narthex. The entablature, which is of marble, has an enriched architrave. The frieze is divided in two, the lower part being a torus with fillets, ornamented with the Byzantine acanthus scroll, and a flat surface above with a Greek inscription.

The cornice has an ornamented cyma without a fillet below; the corona is replaced by canti-levers; below them is an ornamented bead with a dentil band and fillet below. Eight of the columns are of Verde antique, the rest appear to be synnadic; the capitals are Byzantine, those of the upper galleries are of the splayed cubic shape enriched with ornament and with a sort of dwarf Ionic capital below them. The joints of the columns between the bases and caps are filled with lead. It is a very striking church as far as its internal design is concerned, but it is at present whitewashed; it is hoped the mosaic exists below the whitewash. The dome is a hemisphere about 54 ft. in diameter.

We must probably look to Asia Minor to find where Anthemius and Isodore made their maiden essays; for when Justinian first decided on the new Sta. Sophia, Anthemius seems to have had no hesitation in making his model; and though Procopius tells us that he and Isodore met with great difficulties from the unprecedented weights to be carried, they successfully completed the building; and this, as far as we now know, was the first great European building with spherical pendentives, the original dome, too, being the flattest ever built.



Paris, France. FAÇADE, BOIS DE BOULOGNE. A. Pollet, Architect.

Architects will admit that less than forty days was not much time for making a model of an original building with one of the largest and flattest domes ever built. I beg to draw your attention to a model being the oldest and best way of showing a design. It was from a model that Sta. Maria-dei-Miracoli at Venice was built, and Sir Christopher Wren recommends a model to be made for all important buildings.

The buildings forming the church of Sta. Sophia and its dependencies were as follows: An open atrium, surrounded on its three sides by a peristyle, and having in the middle of its open area a cistern or fountain, an exo-narthex, a narthex preceding the church, the church, and a passage at the back of it; on the south side a range of buildings, and attached to these, at the west end, but further south, the baptistery.

The buildings on the south side, beginning at the west end, were as follows: A staircase for the superior catechumens, the vestibule to the narthex, a passage and court, the clock-room, the holy well, the metatorion or large hall, the triclinum Thomaites, and a wooden staircase for the superior catechumens, forming a communication between the galleries of Sta. Sophia, Sta. Maria Chalcopratiana, and the Palace. The exo-narthex is about 19 ft., the narthex about 30 ft. wide, and both are about 200 ft. long; the height of the narthex is 43 ft., and is lit by nine windows above the roof of the exo-narthex; the church is about 262 ft. long externally, exclusive of the narthex and the projection of the apse, or 278 ft. long to the outside of the apse, and about 240 ft. wide. The nave consists of an oblong square, 110 ft. wide by 103 ft. long, with two vast hemicycles about 103 ft. in diameter at the east and west ends; and each of these have a subsidiary apse on each side, about 42 ft. in diameter, each supported by arches on two columns, and the square openings in the middle of the hemicycles are about 48 ft. wide, the eastern one ending in an apse about 40 ft. in diameter, with two tiers of windows in it, as well as windows in its semi-dome. The aisles, in the clear of the walls and front columns, are about 56 ft. wide.

The dome is about 103 ft. in diameter and 48 ft. high in the clear, and is lit at its base by forty windows, and is carried by the four arches of the nave, and the four vast spherical pendentives —four enormous piers about 35 ft. long over all and about 25 ft. thick at their widest point—have each a quarter of the weight of the dome, one arch and a pendentive to carry, the two projecting piers at the back of the first main pier are nearly 6 ft. square. These main piers, 25 ft. by 65 ft., are hollowed out by an oblong chamber about 13 ft. by 30, and by the openings for the aisle and to the window, and have a net area of about 1,110 ft. super; they carry a portion of the gallery as well, but the external part of the pier is mainly an abutment. From the pavement to the crown of the dome is 185 ft.; but this is the new dome which was put up by the nephew or grandson of Isodore, and is said to be 25 ft. higher than the original one.

If you look at the plan of St. Sergius and Bacchus, you will see how well it deserved the title of "The little Sta. Sophia." It is an oblong square outside, with a projecting apse at the east end like Sta. Sophia, and if you cut the church in two in the middle on a line running north and south, and remove the two halves far enough away from each other to get in two more columns and arches, and turn the two half hexagons into semi-circles, you would have the precise form of the nave of Sta. Sophia, and to complete the resemblance you have only to clear away the angle niches of the aisles and insert four columns; only as Sta. Sophia has a nave about 110 ft. wide, and St. Sergius and Bacchus has its nave only about 53 ft. 6 in., with a hemispherical dome of the same diameter, all the supporting parts of the former had to be very much larger: if we take two of the angle peirs of St. Sergius and Bacchus their sectional area together is about 95 ft., while the front half of one of the angle piers at Sta. Sophia has a sectional area of 537 ft., and this was not a brick or rubble pier, but one built of solid stone.

Returning to Sta. Sophia, you enter the narthex at one end, and walk down this magnificent gallery, lined with slabs of lovely marble, panelled by means of projecting slips of white marble ornamented with what has been called the Venetian dog-tooth, capped with a carved marble string and pietra dura work. The groined vault of the narthex is covered with gold mosaic enriched with silver and colors. As you walk down it, you come to the bronze-plated jambs of the royal door-way in the centre, and step into the church. The sight that then meets your eye is thrilling, partly from its magnificence, but mainly from its overwhelming vastness. You are in a hall 110 ft. wide—a width of hall you have never seen before, and, though the length is 265 ft., the eye embraces it at once, and the whole of the vast space is absolutely without anything intervening between you and the end of the apse, while above your head is the immense dome, seemingly supported on nothing, and below the arch is the crescent of the hemicycle, with its windows; the bulk of the light is overhead or screened by the columns of the aisles, and the windows in the apse, being partly of stained-glass, are not at first obtrusive, as you naturally throw up your head; the whole interior is lined with beautiful marbles, panelled like the narthex, and with pietra dura work in splendid patterns; the screen columns are monoliths of verd antique from Ephesus, presented by Constantine, the prætor of that city. The columns of the apses are of purple porphyry banded with bronze, and were presented to Justinian by a wealthy Roman widow named Marcia; they were probably taken from Palmyra by Aurelian to adorn his Temple of the Sun at Rome. The domes and vaults, as well as the walls above the marble lining, are adorned with gold mosaic enriched with slight patterns in color. There is a subdued magnificence about the effect that is enchanting, though I believe the effect would be improved by repolishing the marble, as at present, the gold mosaic of the upper part overwhelms the dim pale color of the lower marble work. It is not, however, until you go up into the galleries, each 250 ft. long by 60 ft. wide, besides the upper narthex 200 ft. long by 26 ft. wide, that you are fully aware of the vastness of the structure, and the altitude of the building is also better observed there, for although you are only 43 ft. above the pavement, the chandeliers with which the mosque is filled seem to touch the ground, and yet you seem no nearer to the dome; almost every trace of figures has been obscured by the Mussulmans—the very heads of the six-winged cherubims have been replaced by mosaic stars.

Justinian's pious boast when he opened the church, "Glory be to God who has thought me worthy to accomplish so great a work, I have vanquished thee, O Solomon!" strikes us as being only too modest, for he had caused to be erected a temple as superior in science and effect to Solomon's Temple, as the Pantheon is to an Indian wigwam—he had in fact caused to be produced one of the wonders of the world.

In the description I have just given I tried to convey the impression made upon me on entering the church. There are, however, a few more particulars I should like to give you, although you can see most of these from the diagrams (see section of Sta. Sophia). The upper story is only five-sevenths of the lower one, and to make the arcades of the nave in tolerable proportion, six columns have been put over the four beneath, and round the upper apses of the hemicycle there are six columns over the two below, the effect of which is satisfactory. The height to the crown of the four main arches of the nave is not a fourth more than their width. The screen walls, which fill in the north and south aisles, above the upper arcades, are pierced with two ranges of circular-headed windows, so that the whole of the upper part is flooded with light. In looking from the floor of the nave at the arcades you are satisfied with them, but in looking down at the lower ones from the end gallery the capitals do not profile well; there is a want of style and accent about them which makes the whole of that piece of the composition look tame and feeble.

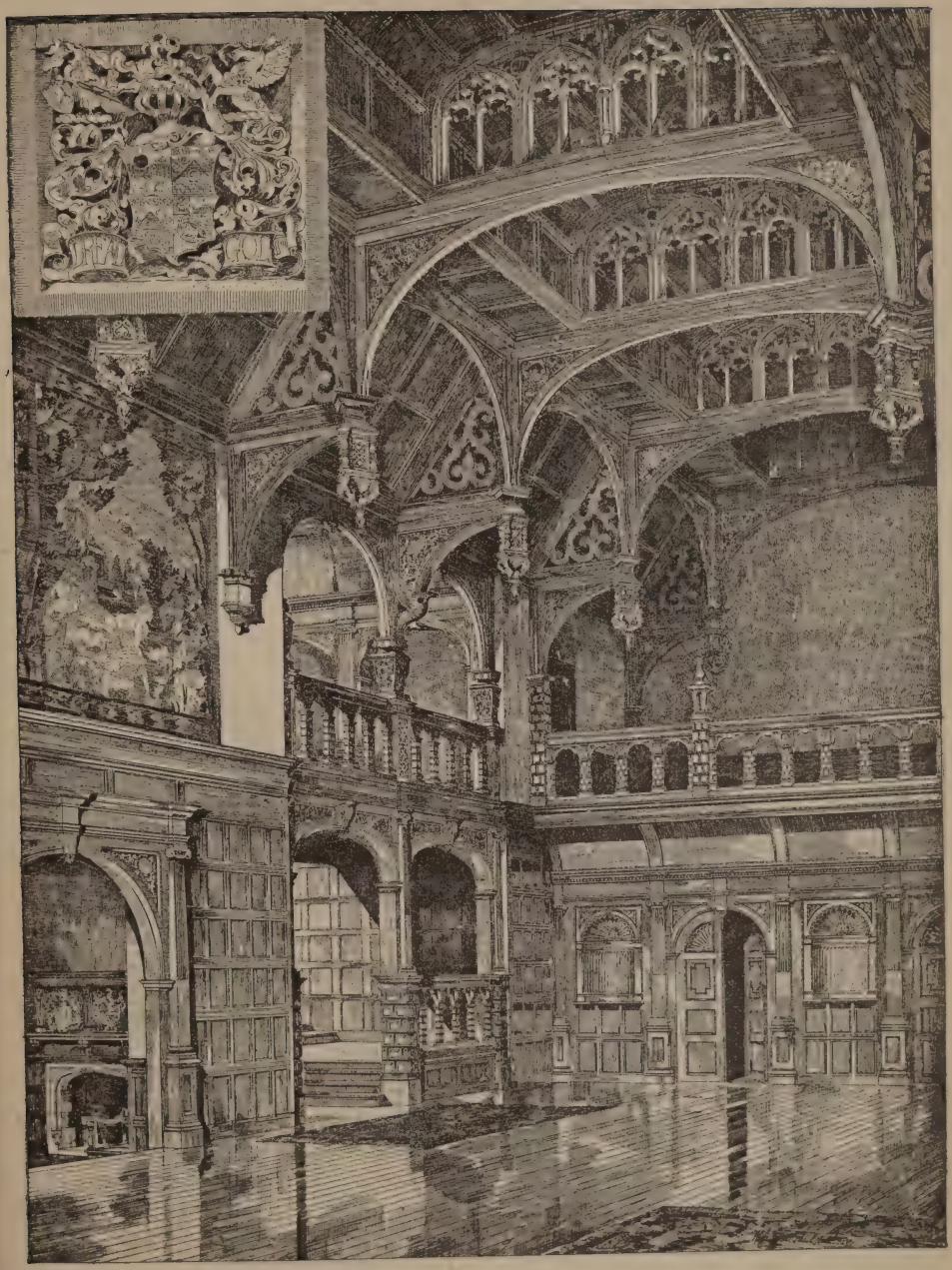
In the aisles, the twelve columns

have rather the appearance of having been put in after the work was done; the position of eight of them has a sort of haphazard look, which is intensified by two of each, four being square piers, while the other two are round columns. One of the round ones of each group of four is nestled into a corner by the solid part of the subsidiary apse. The extra weight the square piers have to carry seems hardly a sufficient reason for making them square; still they are not unsightly.

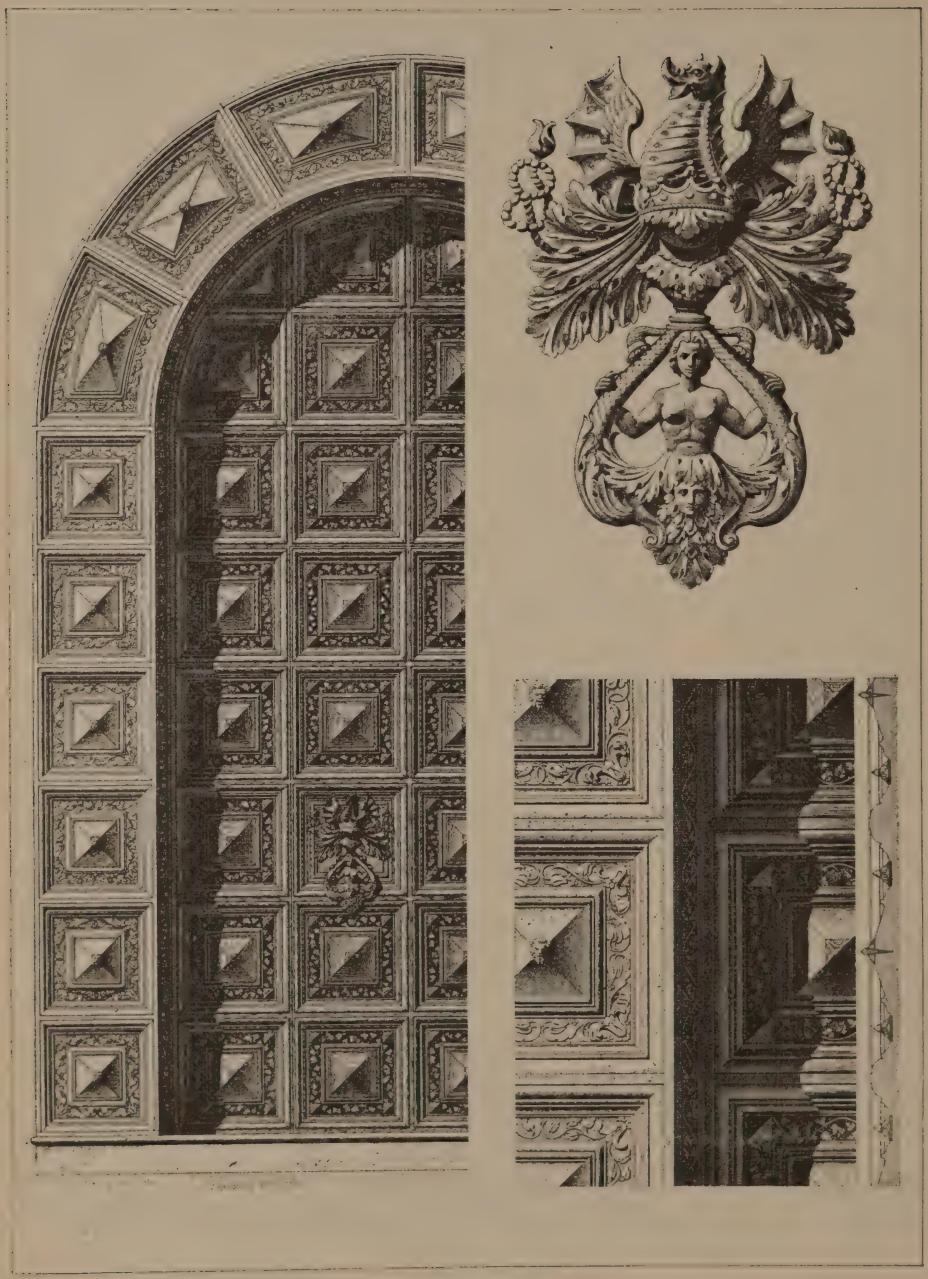
The two inner columns of the screen, and the two behind them, tell their story well—they act as stiffeners to the screen-wall, but, as in the aisles and the galleries, the columns had to be shorter than the screen ones to get in the groined vaults, ingenious devices have been hit on to accomplish this; in the aisles the arches between the front columns and the back ones are quadrants, in the galleries the difference of height is got over by each line of columns having its own wall over it, and these walls are joined at a higher level by a small barrel vault. The galleries show, alas! too many signs of the effect of the earthquakes with which Constantinople has been afflicted; vaults have opened, columns have been pushed out of the upright, and the marble slabs of the floors have cracked and sunk: these appearances, together with the iron ties, besides the original wooden ones, tell their own tale. The floor of the church is completely hidden, like that of all mosques.

It is, perhaps, hardly fair to criticise the outside, as it is doubtful if it was ever finished, and since the completion of the church many additions have been made to increase its stability. The dome being planted on a square terrace is depressed by the perspective, and you only see a flat segment rising above the buttresses at the sides of the windows of the dome. The narthex, with its large semi-circular windows divided by a transom and columns, looks like a riding-school or a factory; the enormous buttresses below hardly explain themselves, and are not lovely to look on. The north and south sides have each two enormous towers reaching to the terrace of the dome, the last stories being round-headed; these towers almost look as if they were of prehistoric times; between them the circular-headed walls of the aisles are filled with vast circular-headed windows, and look as if they were workshops added to a railway station. The whole exterior is covered with whitewash and narrow stripes of ruddle. Externally you would take it for a factory, or an overgrown railway station, added to by an engineer. It is not unpicturesque, as seen from the entrance to the Bosphorus, with the sun setting behind it; you see a heavy square reddish lump with a flat dome, but it compares very unfavorably with the fine outline of the great Turkish mosques.

It will, I think, be now interesting to hear the account Procopius gives of the difficulties encountered in the building. These difficulties, if real, show that the architects were not very perfect in their knowledge, or, if the difficulties were imaginary, that they were adroit courtiers. There is something dramatic in human difficulties and emotions that attracts our attention and enlists our sympathies, while these sympathies are not touched when the skill of the architects is so great that we hear of nothing but the completion of the building. Viollet-le-Duc sneers at the twelfth-century architects, who were always seeing visions, of having angels visit them to help them out of their difficulties; but for that very reason we feel a personal interest in them, and a kindliness towards them which we do not feel towards their more skillful successors. There is hardly a passage of such interest in the whole thirty-seven books of Pliny's "Natural History" as that in which he recounts the architect's trouble with the lintels when he was building the Temple of Diana of the Ephesians. Pliny says: "The great marvel of this building is, how such ponderous architraves could possibly have been raised to so great a height." This, however, the architect effected by means of bags filled with sand, which he piled up upon an inclined plane until they reached beyond the capitals of the columns; then, as he gradually emptied the lower bags, the architraves insensibly settled in the



Hampshire, Eng. RHINEFIELD, Romaine-Walker & Tanner, Architects.



Bologna, Italy. DOORWAY (WITH DETAILS), PALACE GOZZADINI.

place assigned them. But the greatest difficulty of all was found in laying the lintel which he placed over the entrance door. It was an enormous mass of stone, and by no possibility could it be brought to lie level upon the jambs which formed its bed; in consequence of which, the architect was driven to such a state of anxiety and desperation as to contemplate suicide. Wearied and quite worn out by such thoughts as these, during the night, they say, he beheld in a dream the goddess in honour of whom the temple was being erected; who exhorted him to live on, for that she herself had placed the stone in its proper position; and such in fact, next morning, was found to be the case, the stone apparently having come to the proper level by dint of its own weight (Pliny, "N. H.," Book xxxvi., cap. 21).

We must be thankful for small mercies in the way of contemporary history of architecture, as we mostly have none at all; but when we know that Procopius had been the secretary of Belisarius, on whose courage and skill the very existence of the Byzantine Empire depended, and that he subsequently became a senator and prefect of the city, we think he might have learned the names of the parts he describes and the real particulars from the architects themselves; but he behaved just like a modern historian does who describes battles—there are pages, if not chapters describing the charges and the carnage, but when you have read the description you do not see why the losing side should not have won. The historian never thinks of asking a master of the art of war the causes of the victory. I now give you extracts from Procopius about the method of building the piers, and about some of the troubles encountered; he speaks, in the first place, of the main piers supporting the four great arches, as follows: "The Emperor Justinian and the architects Anthemius and Isodorus used many devices to construct so lofty a church with security. One alone of these I will at this present time explain, by which a man may form some opinion of the strength of the whole work. As for the others, I am not able to discover them all, and find it impossible to explain them in words. It is as follows: The piers of which I just now spoke are not constructed in the same manner as the rest of the building, but in this fashion: they consist of quadrangular courses of stones, rough by nature, but made smooth by art. Of these stones, those which make the projecting angles of the pier are cut angularly, while those which go in the middle parts of the sides are cut square. They are fastened together, not with what is called unslaked lime, not with bitumen—the boast of Semaramis at Babylon—nor anything of the kind, but with lead, which is poured between the interstices, and which pervading the whole structure has sunk into the joints of the stones, and binds them together; this is how they are built." I may say on this, that Professor Unwin has found by experiment that lead is the worst material that can be used to bed stone on.

Procopius then goes on as follows to tell us of the behavior of these piers, while the arches were being turned: "The above is an account, written in the most abridged and cursory manner, describing in the fewest possible words the most admirable structure of the church at Constantinople, which is called the Great Church, built by the Emperor Justinian, who did not merely supply the funds for it, but assisted it by the labor and powers of his mind, as I will now explain. Of the two arches which I lately mentioned (the architects call them 'lori'), that one which stands towards the east had been built up on each side, but had not altogether been completed in the middle, where it was still imperfect. Now, the piers upon which the building rested, unable to support the weight which was put upon them, somehow all at once split open, and seemed as though before long they would fall to pieces. Upon this, Anthemius and Isodorus, terrified at what had taken place, referred the matter to the Emperor, losing all confidence in their own skill. He, at once, I know not by what impulse, but probably inspired by Heaven, for he is not an architect, ordered them to carry round this arch; for it, said he, resting upon

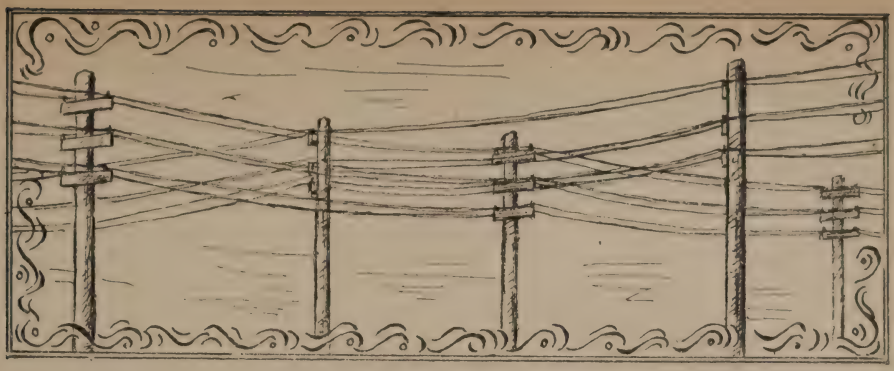
itself, will no longer need the piers below.

"Now, if this story was unsupported by witnesses, I am well assured that it would seem to be written in order to flatter, and to be quite incredible; but as there are many witnesses now alive of what then took place, I shall not hesitate to finish it. The workmen performed his bidding, the arch was safely suspended, and proved by experiment the truth of his conception."

I may say here that if this application to Justinian was not an adroit piece of flattery, and the architects were really in anxiety, they must in the first place have greatly trusted to luck, for in modern practice the architects would have made themselves sure that the piers would carry the weight before a stone was laid. Next, if they were really alarmed, why did they consult Justinian? unless, indeed, the old fiction of the Roman Emperors being gods was still believed, for Procopius says Justinian was no architect. This splitting open as though it would fall to pieces may have been an exaggeration of Procopius. There may have been some slight cracking or scaling from imperfect bedding that the architects were not really alarmed about. We see what Justinian thought, that when the arches were complete they were held up by vertical friction against the piers. If the piers absolutely split open what did it mean? Procopius tells us nothing but the fact, and leaves us to infer that no reparations were made. We naturally suppose that all the work was carried up evenly to the same height, and that if serious settlements took place, that it was from the arches being on a comparatively small surface, which caused the foundations and that part of the pier to compress, and so tore it away from the adjoining part; but, if this were so, they would hardly have dared to let it remain, so I think the uneven pressure caused a few hair cracks which were exaggerated by common rumor, for if these piers had split through, and looked as if they would tumble to pieces, we can hardly imagine that the architects would have ventured to complete the arches upon them and put a dome on the top as well. Procopius goes on to say: "So much, then, for this part of the building; now, with regard to the other arches—those looking to the south and to the north—the following incidents took place: When the arches (called 'lori') were raised aloft during the building of the church everything below them labored under their weight, and the columns which are placed there shed little scales, as though they had been planed. Alarmed at this, the architects again referred the matter to the Emperor, who devised the following plan. He ordered the upper part or the work that was giving way where it touched the arches to be taken down for the present, and to be replaced long afterwards when the damp had thoroughly left the fabric. This was done, and the building has stood safely afterwards, so that the structure, as itwere, bears witness to the Emperor."

This case is very simple, the arches were probably of brick, and while coming to their bearings pressed on the screen wall, filling the space between the piers, and caused a scaling of the columns at top and bottom; many now have bronze rings on the necking, and at the base. Justinian's advice was right; but we cannot believe the architects did not know what to do in such a case; probably the whole thing from beginning to end was a judicious piece of flattery to allow the Emperor to exhibit his extraordinary wisdom.

Professor Aitchison.



CROSS-CURRENTS.

IT cannot be long now before all of us will be given over to the Columbian celebration. It will be like the family party. Paterfamilias having discovered the harmony between avoirdupois and ease may ask at first why *he* has to be drawn into these things; Materfamilias is sure amid the preparation to have days of perturbation, when she will nervously wish "people would only let other people alone;" and sons and daughters, relatives and servants will each suffer, according to his kind or hers, some sort of irritation. But when the festivity is come! What excitement and expectation! And the carriage that finally arrives to take us away at least was made in the same factory as Cinderella's (for I rejoice to say that that firm is still doing business, though it is true its work has sadly deteriorated). So it will be with this Exposition of ours. Paterfamilias just now may be grumbling and exhibiting a very odious state of mind, other members of the household may be fuming and fretting, but everything will yet be right, and we shall all drive off and heartily enjoy ourselves to the envy of our neighbors, who are sure, *we* know, to be watching us from points of concealment. The eagle is showing signs of "mewing her mighty youth," and I fear that already the noble bird has lost several feathers, one of which I am sure I detected the other day in the shape of a pen on the desk of one of our "great" editors, amid census reports and other statistical measurements of national bulk—"greatness" was his expression, but I have ventured to correct it, for it is permitted to use words in speech with less nicety than in the editorial columns of the *People's Trumpet*. There you find the Qu—People's English employed with a raciness that in itself savors of the paper's immense circulation; and wonderfully employed it is, too, in dividing the eighth part of an idea into little paragraphs, each of five or six lines.

These paragraphs in the *Popular Trumpet* remind me of a cook-book which I understand is quite a favorite in religious families. In the midst of the recipes for rare green turtle, delicious oxtail and rich consummé there is one for a nameless extract, entitled by the author "Soup for charitable purposes." Ah! here is the *bonne bouche*, I thought; the soup which surely we would wish to be fed upon; an elysian, or more properly speaking, a heavenly decoction—rich with kindly feeling and warmth of heart and thankfulness for the lordly position of giver. Of course, as was right, all this sentiment was left in the recipe to the imagination, but I found upon reading so was the meat.

I hope the foregoing isn't so wide of Progress (for it is *that* I started out to speak of) that the Editor will run his pencil through it. I am afraid—indeed are there not signs already visible?—that the coming celebration will offer an opportunity, too enticing to be passed over, for the making and publishing of dithyrambs upon Progress and the great strides towards the Millennium mankind has made in the last four hundred years. Now, if there is any word that we all ought to be more heartily sick of than another it is this word "Progress." It represents one of our modern fetiches, as repulsive as a barbarian's totem, suggestive of ignorance, superstition and inhumanity. I know that the great journalist into whose sanctum I penetrated lately, stirred by the Exposition, will soon be plying that eagle's quill in climax upon climax of figures about our miles of railroads, bushels of wheat, tons of iron, growth of population, per capita calculations of beef and bread consumed, annual income, letters carried by the mails, telegrams flashed, books printed, and—culmination of civilization!—newspapers circulated. The whole confusing array of figures will be used as a sort of gigantic alphabet to spell out this superstition called Progress. Really it is surprising the trum-

pet-sound the word has for most people. No doubt it suggests vividly enough what Balzac called "the prodigious development of the financial element in human nature," but can that be Progress which stands for so little of those higher elements in human nature which constitute the real dignity of Humanity? What is it Apollodorus says in the Symposium: "But when I hear another strain, especially of you rich men and traders, such conversation displeases me, and I pity you who are my companions, because you think that you are doing something when in reality you are doing nothing." That is the strain to harp back to to steady one's self and restore the equilibrium of reason when one is deafed with the bacchanalian cry about Progress. The "financial element in human nature"—it has so overmastered every other that we have come to regard tons of coal, miles of rail and other physical quantities as an end and a good in themselves. Poor Humanity! Statisticians are forever busy calculating what it costs to produce a yard of cotton cloth, a bushel of corn, a ton of steel. But why is it they figure only the financial element? The human element is never considered, and of what real value are these calculations to civilization with *that* left out? Has Civilization, too, become a mere affair of finance, a sort of ledger account of the Human Race? The fact of the matter is, this country (and indeed every other great commercial nation) is paying a very heavy price in the coin of humanity for its wealth. Quite one-quarter of the people of New York City pass their lives in squalid streets and crowded tenements, where the savor is hardly that of anything one dare call civilization. Mr. Rüs has written a very dismal, but, I believe, veracious, book upon "how the other half live," which it is difficult to think any Rhapsodist about Progress can have read. It is worth reading, however. I am sure, too, Civilization would gather up her silk skirts (made in Paterson, N. J., so a protectionist friend of mine tells me) if she were compelled to pass through a Pennsylvania mining town. Delicate dame! She would close her eyes and ears and take the very next "Pullman vestibuled palace sleeping car" for some fashionable resort. I wouldn't like to say how many millions of the people of our country live lives of dirty toil—I don't refer to the grime that soils hands and face—there is soap and water for that—but the grime that quite spoils the cleanliness and sweetness of life. And what shall we say of our Progress in politics, with our Quays and our Hills, our bosses big and our bosses little, our heelers and our bummers—a vast army of them! As far as a general statement can be correct, we may safely say that political position is absolutely impossible to-day to an honest, intelligent gentleman. Look where we will, was life ever so vulgar and sordid? Wealth is accumulating; men decay. As much as at any other time in the history of the world Civilization is an affair of the few. Our measure of Progress is taken *at the wrong end.* No wonder in the heart of man there is discontent, and the shepherds are watching again for a star over Bethlehem. Only the other day a friend of mine advertised for a "middle-aged bookkeeper." What a spectacle of threadbare humanity, stricken with the palsy of commercial life, was summoned from the vasty deep. Ink and figures! Ten to fifteen dollars a week! What a fate at the end of forty years of endeavor! Why not confess the slavery? Listen to the story: "I am a thorough accountant, Sir, was fifteen years with Dollars, Cents & Co., the great dealers in Humanity; you know them, Sir; they will speak well of me." Then out comes the much-used testimonial—"To whom it may concern." Did Swift ever write a deeper satire? Said Dollars, Cents & Co. affixing their weighty signature thereto: "With us for fifteen years"—"Competent"—"Trustworthy"—"Sober"—"We part with him only because we are cutting down expenses." Diapason of commercial heartlessness. To whom it may concern!

My friend and I paid the tribute of a sigh to the forlorn spectacle, moralized a little, and like true children of our day—partakers of Progress—lunched heartily afterwards at the Savarin. Hypocrites we all are. To whom it may concern! What better motto can we inscribe on the banner of our Progress!—*Secundus.*

On the whole the Editor is rather in favor of committing suicide. This does not mean that we are thirsting for our own blood; that we are taking lessons in pistol practice, or that we are making inquiries as to cheap and tasty poisons; it means only that we have reached a Logical Conclusion. When the foregoing paragraphs were sent in for publication we pondered them deeply. We spent time and thought, most valuable to the public, in the effort to penetrate every dark corner of their meaning, and when we finally finished we said to ourselves: "There is no other way out of it; we (another we) must all commit suicide."

For if the Gods are unjust what can mortals do? Every pessimist will admit that men are

placed in a most perplexing and even a somewhat agonizing position. They will still cherish a humble wish to do the right thing under the circumstances, but the trouble is that when the Gods are unjust there is no right thing left to do. A mortal cannot defy the Gods, for it is They that give life, pervade creation and constitute law. He can only walk meekly in Their way; and if he finds that way nothing but a delusion and a snare and himself only an outcast in the world, he may well stop and ask himself the use of further traveling. True, all men whose souls have been tried in this manner have not shared this conclusion. Mycerinus, for instance, took out a lease of pleasure for the remaining years of his life, and this has in all ages proved to be such a popular course that the Editor, who believes in the people, reflected some time before throwing it over. Then others whose souls were too high for mere hedonistic grovelling, simply held aloof; they said: "We will not mix with the poor, blind, struggling crowd; we will mount the Hills of our Understanding, look at them and smile." But the Editor has lived too much on the moral side of things to be deceived by any such trifling. Those who adopt either of these courses put themselves in the place of the Gods and deny the supremacy of the latter; they are the blindest of the blind. To live is to live for something; if the Gods grant man nothing he had better die. That is why the Editor is in favor of committing suicide.

The logical consequence of this conclusion, however, is not that we all immediately give up business and join Mr. Stevenson's Suicide Club. That course the Editor believes to be distinctly immoral. It is very well for you and for us; but how about the rest of the world? Ought not they to die too? Shall we, to whom the light has come, basely desert them that know it not? Shall we escape from the Great Sham without taking them with us? No, it is just here that the Editor's high sense of morality again comes in. Let us spread the light. Let us go forth among the people and tell them that Mankind is a mere bubble on the frothing current of time, that Hope is a plaything for children, that Ambition is a rose in the distance and a thorn in the hand, that Progress is a vain dream, and that Life is a sorry jest. (The Editor forgets what Charity, Love, Virtue, Truth and Faith are; but he is sure that they do not amount to much anyway.) Then when the people are converted, we can all commit suicide together.

Up to this time it must be admitted that the pessimists have not lived up to their doctrine. In these days, when every little reform movement has its association, with presidents, secretaries and headquarters, the pessimists alone have failed to organize. Yet it needs no very keen and penetrating mind to discern the enormous difficulty of their task. At present public opinion is entirely opposed to suicide. Men may see that Progress is a particular fraud, and that fifteen dollars a week is small pay for a whole life; but, nevertheless, they do not want to die. Every one of those associations mentioned above is for some an argument in favor of life. If the pessimist should begin to tell these people what deceitful things Hope, Progress, Love, Faith, etc., are, they would answer: "Very true; I have often thought something like that myself, but there is my idea for the amelioration of mankind by the use of concentrated meat extracts. That is a reality for you; that is something worth working for. Why, sir, if you will step down to the office of our association at No. 345 Bunkum place I will show you"—and the pessimist would have to withdraw in order to escape an argument about meat extracts. It is just this stupid clinging to particulars that pessimists would be obliged to combat, and they would have every bit of organization in society dead against them. In order to stem this purblind but overwhelming torrent in favor of life, even at fifteen dollars a week or less, they also must organize—not a selfish secret suicide club, but a downright, outspoken association, with the name over the door in gilded letters and no lack of vice-presidents.

An Editor suggests, and he is done. It is for others to take the path thus clearly indicated. We have, properly, nothing to do with all the details of this most important movement of our time. Because, however, of its very importance, we are willing to carry our suggestions one step further. There are a number of dangers to which every young and vigorous campaign is subject, and these should be strictly guarded against. In the first place, the really enthusiastic pessimists will surely wish to go too fast, to make mankind appreciate the desirability of suicide in perhaps a year, in ten years, or in a lifetime; and if they do not thus immediately succeed, they will grow discouraged, and perhaps get out of the hateful world long before their part of the work is completed. Such a disastrous contingency can best be provided against by teaching the younger members of the band not to expect too much, that Truth spreads very slowly, and that it may take several generations to make the majority of mankind see in suicide a relief and a repose rather a dreadful uncertainty. And if the arden

young proselytizers naturally feel disappointed at this postponement of the day when they can say a happy good-bye to the aimless misery of mortal life, they may take comfort in the fact that, at all events, they cannot be cheated out of this refuge: they must die some time.

Another error, which might easily be made is that of giving some name to the association which would repulse people at the outset. If, for instance, it was called the "Society for the Propagation of Suicide," it would immediately awaken that blind and stupid prejudice against self-murder, which Shopenauer has so mercilessly, so eloquently, and so justifiably denounced. The purposes of the organization should be hid under some ostensibly innocent designation, such as the "Society for the Eradication of Misery." Then good pessimistic literature should be freely circulated—rather in the way of poems about woe, and tracts illustrative of the fleeting nature of happiness than in any more virulent and outwardly suicidal shape. It might be well also to print and distribute a regular periodical, which, perhaps, could build up a steady paying circulation by appealing to the undertakers' business instincts. We are aware that these benefactors of our race already possess a sprightly trade paper called the *Shroud*, but obviously the vigorous spirit of death which the capable and energetic pessimists would put in their journal would leave the *Shroud* far behind in the competition for trade. The Editor is overflowing with a great many more suggestions of this character; but we withhold them until we are able to observe some evidence of organized proselytizing activity on the part of the pessimists; adding only this final assurance, that when the whole human race is ready for suicide, the Editor will not be behind the rest, either in discussing the convenient methods or in putting them to effective use.

—*The Editor.*

If pessimism were a matter of reasoning, even weak and harmless satire like that of my friend the Editor might have some effect; but in truth it is almost entirely a matter of emotion, and emotion is impervious to the shafts of ridicule. Few races have been so totally lacking in any sense of humor as the Hindoos; and among them of all nations the pessimistic view of life was dominant. A strange passive race they were, living in a cloud of visionary sentiment, scarcely ever rising to the Manichæism characteristic of the East, but enveloped in a hopeless atheistic pessimism. A race whose tendencies are mainly towards action are never troubled with these diseased hallucinations. The world to them is something to be made, not to be suffered; and the civilization of the Western nations is traceable to their steadfast and energetic efforts to realise this instinctive conviction. In the Nineteenth Century, however, life has been reduced more than ever before to its elements, and the emotional side thereof has been but too largely divorced from the intellectual side. So we have a din of many voices telling us that things are infinitely bad—which signifies no more than that they are very trying to some delicate sensibilities.

In few cases, however, do these outcries stand for a theory of things; they simply represent an emotional attitude towards life. Shopenhauer and some others have developed pessimism into a moderately coherent system. These authors, being consistent, have logically advocated, as the best way out of a very bad bargain, the instantaneous suicide of the whole human race. But, noticeably, they did not themselves commit suicide. It is only hysterical pessimists who do that—their characters becoming, as it were, diffused in emotion. But your pessimist will generally prefer life without philosophy and with emotion to philosophy without life and consequently without emotion. In other words, the emotionalism which, as a rule, blinds them to the logical necessity of suicide does in extreme cases supply the crazy desperation needed for its commission.

It follows that pessimists too frequently assume the privileges of a poet for the purposes of a dogmatist. If they have a real poetical gift we can sometimes forgive this assumption, although even then their pessimism would be accompanied by a grave limitation of their literary sufficiency; but generally their susceptibility to the sweeter, finer and deeper phases of life is so cumbered and colored by their prevailing spirit of melancholy that their intimations of experience are almost worthless to their fellow-creatures. For be it observed the trouble with all didactic literature is not so much that it proposes to teach a lesson as that it fails to teach lessons enough. He who can find but one song in the world has a dull ear. So your pessimist must die to the best of life whether he will or not.

If this pessimism could be traced to simple immaturity there might be some hope for it, but I find it impossible to plead for its votaries extreme youth, implying thereby irresponsibility and a prospect of reformation. Some people can never learn anything, for learning is a relation among several terms and they are composed of but one

term. A sympathetic, hospitable attitude towards life is a condition of experience. Marie Bashkirtseff is continually complaining that our three-score years and ten are too few for the attainment of anything but the merest fringe of knowledge. Poor child! As if she could learn even her easiest lessons by approaching science in such a spirit—by incontinently beating her head against the first hard fact. So impatient a disposition towards the conditions under which science can alone be reached is akin to the spirit which animated the astrologers and alchemists of the Middle Ages, who endeavored to cheat the world out of its secret by some expedient and might not illogically send Mdlle. Bashkirtseff off in search of some miraculous elixir of everlasting life. But if she could have found it, think you that she would have compassed perpetual youth and consummate knowledge? Science is not for the impatient and the fretful. They may crave it, but they are like unto that eager maid whom Heine tells about. She drank of the elixir that her mistress so successfully used, but drank too deeply and found herself restored not merely to the freshness of youth, but to the babbie of childhood. Such people fly in the face of Time, and Time, who cannot bear to be defied, adds nothing to their years but leaves them everlastingly children.

We cannot judge the work of God by the principles which we use in judging the work of man. We cannot ask the jury to free their minds of all prepossessions, to purge themselves of all knowledge of the matters in hand, and to take their seats in the box the colorless embodiments of blind Justice. The Creator of this world demands a packed jury in favor of His creation. The evidence in these final cases cannot be read by those who run. The witnesses are audible and visible to them only who qualify their eyes and ears for the message, and who spend their years in the box. "I do not know of any method," said Burke, "of drawing up an indictment against a people." The attempt to draw up an indictment against life is equally futile, By the very act one is ruled out of court. In order that life may be known life must be loved.

Truth is no suction pump drawing men irresistibly towards the centre of things; neither is it a coy and hasty bird, which can be snared by grace of a few grains of salt cast upon its tail; it is an atmosphere, a living and moving atmosphere. Its coarser touch we cannot escape; its fullness and glory we cannot reach; but if we are faithful and willing we may approach it. And remember this, O! *Secundus*. A man's relation to this atmosphere is never consummated, for the final synthesis of life is growth and always growth: The assumption that the relation is consummated or that it can be consummated is the source of all intellectual error and moral perversity. What you and I and all of us and all things must do is to go on, good and bad alike, giving place to better. Of course, evil is inseparable from incompleteness, and Frauds political, editorial and commercial bristle on the back of a laboring world. But when, my good *Secundus*, you meet them on the highways do not fly panic-stricken to cover and waste good time in wailing. If you need comfort take unto heart this salutary truth, that of all the fleeting things of this world the most fleeting is a Fraud.

Be, then, easy about the slave-drivers and the mongers of clap-trap. They go the way of all idolaters; and just think, my friend, it rests with you, who dislike them so, and the rest of us, to see that they are not succeeded by others equally idolatrous. Here is a most glorious service, to which all men with clear heads and stout hearts should swear fealty. They must track the frauds relentlessly to their lairs, expose the false prophets in the market place, and laud the true ones from the house-tops; they must succor the slaves of modern machinery wheresoever they can, and treat their bookkeepers as much like human beings as possible. Strenuous work of this class wisely ordered not only kills Frauds, but helps to kill the Spirit of Fraud and so make way for the Spirit of Truth.

The Ideal lives to-day or never. Alas! I know not where it is to be found. In truth, we may not put our hand on any particular spot (the City Hall or the Stock Exchange, for instance,) and say that it is there. Its only abiding place is in the spirits of its ministers. But it is among us at this moment—so much we may be sure of. The present is in no want of justification by the future or the past, either by a Garden of Eden in the beginning or a millennium in the end. Let the nurses of the world coddle the children with such fairy tales. Truth is the great organizer of life. No one need sacrifice home, kindred, friends, associations, and wander forth lonely in search of the Holy Grail, for there are some traces of it here in New York, on January 1st, 1892. To find these traces, *Secundus*, you have only to live and to think wholesomely—that is in the whole—remembering that civilization is more than a few centuries, that human nature is more than its latest phase, and that man is more than a mood.

—*Primus.*

RAYMOND LEE.

CHAPTER IV.

CIRCE'S COTTAGE—THE END OF ALL ENCHANTMENT.

PILGRIM was short, rotund and fat. On the morning after the storm he dressed himself in the little bedroom in the Cottage in anything but the spirit of thankfulness and content proper to a Christian in his circumstances. Our every-day nature so soon resumes its sway—returns with the normal beating of the heart—and Pilgrim's every-day nature was as sensitive as his white fat flesh to little discomforts. With him, life was entirely a matter of petty things. Since his wife's death, which happened soon after his arrival in India, he had lived a sort of Bohemian existence, but one upon a substantial, if not always completely adequate, cash basis. The only vital idea known to Pilgrim was comfort, the comfort that tends to fat; and how, my good sir, could any gentleman of ease be comfortable in a cramped, scantily-furnished room like that in the cottage, where there was not a single convenience; and that, too, after a night spent on a bed that creaked and complained under 200 good pounds avoirdupois. How to get out of the place at once, that was the question for Pilgrim; and not an easy question to answer, either, when one has nothing to stand up in but a red dressing-gown. Isn't it in annoyances of this sort that the real cruelty of misfortune is felt? With a dash of determination Pilgrim parted the few hairs left to him by his forty-five years, and then, as though that completed a war-like attire, descended to the little parlor to do immediate battle with his position.

But the first thing that met his sight as he entered the room was the bright fire and the table set for breakfast. Surely it was with some such subtle charm as this that Circe tried to enslave Ulysses; for was not he hungry, weary in longing for what we term the "comforts of home;" and is it not much more in conformity with our experience that Circe, who admittedly knew well her particular business, should have spread before him the allurements of fragrant bohea than offered him a cold drink of a philtre. The frank acceptance of this supposition—the scholarly ingenuity of which the learned will appreciate—not only enables us to reject the idea of magic, which no one really accepts, but, however much it may damage our opinion of Circe's abilities, immensely increases our perception of the heroic force of character of the Greek hero.

At the first glance of the cosey room the determination of our Ulysses relaxed. A feeling of comfort stole over him as he planted himself in front of the fire and gathered in the warmth with his chubby fat hands. Not for a minute or two, not until he walked to the window to get a view of the hills, over which the white clouds were racing in the sunshine, did he perceive Raymond who was sitting behind the curtain of the bay.

"Ah, you here? Good morning, my lad. It was you, wasn't it, who assisted us last night? To be sure. I was so disturbed I scarcely distinguished anything. And let me see, your name.....? Raymond Lee. There, we *were* wrecked on a lee shore. Ha, ha. I told my daughter we should be. She hasn't been down yet?"

"Not yet, sir."

"No, she must be tired. It was a fearful night. I hope she didn't catch cold. She bore up well until they got us into that wretchedly uncomfortable life-boat. She surprised me. Really, I declare she was calmer than I was, for usually Marian—my daughter, you know—is very timid. You will see she has eyes like a deer's, and her disposition is the same—half confident, half shrinking. All yesterday afternoon she knelt by me and prayed, and really became calmer as the storm increased. Ah, my lad, it's a great thing that, being able to pray, isn't it? I am too fat

to kneel; of course you do. Yes, yes. You must live a quiet life here, somewhat as my Marian did with the two maiden friends of ours. Your mother is alone, I understand?"

"Yes, sir."

"Ah, yes," said Pilgrim, softly.

"No brothers or sisters?"

"No, sir."

"Ah, it must be lonely for you here; but I suppose you have your companions in the village. How large a place is it?" and Pilgrim surveyed the little cottages that were visible from the window, as though they might indicate the number of the population.

"They say about three hundred."

"A vivacious and progressive place, no doubt," said Pilgrim, smiling. "By the way, who is the fashionable tailor here?"

"There is none," Raymond replied, laughing. "The élite buy what they need in Seahaven; the rest are content with home-made clothes."

"The devil you say," exclaimed Pilgrim, surveying his dressing-gown. "How the deuce, then, am I to get out of here?"

"You'll have to measure yourself and send Zipcy to Seahaven?"

"Zipcy—who's he? Where is he?"

"Zipcy does all our buying in Seahaven. You can't see him to-day. He left this morning to fetch Mr. Fargus."

"Fetch whom? Fargus? Do you mean John Fargus, my old friend John Fargus? Why, boy, how does he know I am here?"

"He doesn't know you are here," said Raymond. "Mr. Fargus is mother's old friend. He is coming to see us."

"See you! Why, do you know John Fargus?"

"Mother has for years, ever since she has always known him I think."

"Lee, Lee," said Pilgrim, trying to recall the name. "I don't remember him ever speaking of Lee. I thought I knew of all his old friends. Let me see—there was a lady friend he spoke to me of shortly before I left for

India, but her name was dear me, it ended in ly what"

Mrs. Lee and Marian Pilgrim, hand in hand, entered the room just in time to hear the last few words of Mr. Pilgrim's speech. Mrs. Lee uttered a cry, half stifled in the utterance, dropped Marian's hand, turned pale, struggled to recover herself with a painful effort and hurried forward to Mr. Pilgrim.

"Oh, Mr. Pilgrim," she said, nervously smiling. "I Marian such a lovely morning," and sank into a chair very nearly fainting.

"Oh, what is the matter, dear Mrs. Lee? What is it?" asked Marian Pilgrim. She was greatly alarmed and knelt by Mrs. Lee and stroked her hands. Pilgrim was quite at a loss to understand the change in his hostess, and emergencies of any kind always upset him.

"Mother, shall I fetch Mr. Wilson?" asked Raymond.

Mr. Wilson was the apothecary in St. Michael's, who acted as physician in mild cases.

"No, dear," said Mrs. Lee, trying to recover herself. "This—a passing giddiness—so foolish"—and she laughed hysterically—"wasn't it, Mr. Pilgrim?"

"Hadn't you better let your son call in the doctor?" asked Pilgrim. Mrs. Lee entreated Raymond not to do anything of the kind. She said she had caught cold the night before; that upon entering the room it had seemed very warm; that she really felt quite herself again; and then with an effort took her seat at the table and rang for the meal. After breakfast she insisted that Raymond should show Marian the village. "Take Miss Pilgrim for a good long walk," she said. "It won't do to keep her indoors. She will lose the roses from her cheeks, won't she, Mr. Pilgrim?"

"Well," said the little fat man, unable to understand Mrs. Lee's anxiety. "Marian can scarcely be in need of fresh air, but"

"Oh, you don't know what a difference a day in the house makes. Those roses," she said, stroking Marian's face, "need the air as those in the garden do. You, Mr. Pilgrim," she continued, jauntily, "will have to keep me company until—yes, we will talk of that; I mean Mr. Fargus, you

know, is coming, you will be interested to know. Now, Raymond, don't lose the sunshine; I am sure Miss Pilgrim is dying to see what sort of a place she has been cast upon. Eh, dear?"

* * * * * * *

Saint Michael's glistened in the sunshine. The great craggy cliffs glistened, the little white houses glistened, and the sea in a joyous mood danced and sparkled as though it was flecked with gold. The little waves purled upon the shingle with a lazy murmur and scarcely stirred the seaweed that fringed the rocks. Across the heaven snow-white clouds sailed slowly like great argosies heavily laden with a golden burden.

"How small the coast-guards' houses look down there," said Marian on the cliff-top.

"Yes. This cliff is two hundred feet high."

"It makes me giddy to look down."

"Then don't look down. Look out to sea."

"Oh, isn't that glorious! How far you can see! Isn't it grand! Is this where you heard the gun, Raymond?"

"Yes—but if you are not afraid, Marian, lie down and put your head as near to the edge of the cliff as you can and then look out to sea. You will think you're hanging in mid-air."

"No, I'll sit on this old stone, please. Supposing you hadn't been here that night."

"What is the use of supposing? Look....."

Raymond stretched himself at the edge of the cliff and was putting into practice his own scheme for aerial suspension.

"Now, I'm sinking, Marian; down, down. The bottom is a thousand miles down, like a blue mist."

"Please don't! you frighten me. You may roll over the edge."

"Nonsense! No fear. Don't look like that. I'll come away at once and lie at your feet. Why, you are pale. Did I really frighten you?"

"Yes—no."

"No, yes—yes, no. Which do you mean?"

"Raymond you are impudent. Papa is right, you have been spoilt."

"Did he say so? How can he know? He is right, though, about you. Your eyes are like a deer's. You have a funny way of looking at a fellow so seriously and then turning away quickly, as though you had just found out what you were doing and were ashamed of it. There, you're doing it now; you're blushing."

"You are a rude boy," said the girl, laughing in spite of herself.

"Am I? When are you going to London?"

"Papa said he thought we could start on Saturday."

"What are you going to do there?"

"What questions you ask! How could I know yet? I do not think papa has fixed upon any plan. We may take a house there, or we may go to live with some friends. Won't you ever come to London to see us?"

"Oh, no; mother won't let me leave her."

"But soon you will have to leave her."

"Why?"

"You don't mean to live here all your life, do you? Won't you go to college or—do something?"

"You should ask mother that question. I think she positively dreads even the thought of my going anywhere."

"You will have to be a fisherman then."

"Yes, I suppose so; and some day if you should happen to come here you'll find me dressed in a blue Jersey with a thick beard and smelling of tar like Tom Burroughs," and the two laughed. "Would you know me?"

"I think so. But you will never be a fisherman. What do you want to be?"

"Oh, I don't know."

"Wouldn't you like to be what your father was? I would if I was a man."

Raymond was silent.

"What was your father?"

Still no answer.

"Oh, forgive me! I've hurt you," and a hand was placed softly on the lad's shoulder.

"No, you haven't. Really, I was—I don't know—thinking, I suppose."

"About what."

"I don't know—about my father."

The answer was given in a tone of wonderment, and as one speaks who is making an effort to comprehend.

"Do you remember him?"

"No-o."

"Oh! He died when you were a little baby?"

"I—suppose—so."

Raymond was vigorously pulling up the turf.

"Doesn't Mrs. Lee ever tell you about him?"

"Don't bother me, I don't know anything," and the lad arose and walked to the edge of the cliff, and then stood there looking out to sea.

"Please don't stand there, you make me shiver."

"Here, then, I'm six feet away from the edge."

"I didn't mean to hurt you. I'm sorry. Forgive me."

"You haven't hurt me, I'm thinking."

"About what?"

"Oh, never mind. Let us go home."

Marian arose from the stone. The color came to her cheeks, and she trembled in spite of a very hard effort to be calm.

"What's the matter, Marian?"

"Raymond, I want—will you take this from me. Papa said I might give it to you," and she thrust into Raymond's hand an old Indian gold coin.

"Marian!"

"Don't refuse. It's only a token for — the other night. I haven't got anything better or I would give it to you."

When Raymond returned to the cottage he found that Mrs. Lee had gone to bed and was in so high a fever that Mrs. Stewart, the Scotch woman, had insisted upon sending to Seahaven for a doctor.

"It's only a cold, dear," she said to Raymond. "I must have caught it last night."

"By and by, mother, I want to ask you something," said Raymond.

"Very well, dear, by and by."

* * * * * * *

"Raymond, my boy, you must go to bed to-night. You will be ill, too, and then you will not be able to do anything for your mother. You haven't been to bed for three nights."

Mr. Fargus said this in a whisper close upon midnight in an upper room in the cottage, where burned only a night-light, which gave forth scarcely more than a faint yellow glow, and revealed only as black objects the bed wherein Mrs. Lee was lying and the rest of the furniture. Raymond had drawn a chair close up to the end of the bed, and was sitting there with his head resting upon the counterpane. He answered Mr. Fargus with a slight impatient movement of dissent.

"Come, Raymond, just for an hour or two. I will watch here with Mrs. Stewart," said the clergyman, putting his hand on the lad's shoulder.

Raymond freed himself with a hasty shrug.

Mr. Fargus recognized the uselessness of further insistence and left the room.

"Better so, perhaps," he thought.

Raymond did not know that his mother was dying, for the doctors had said that afternoon that the pneumonia had entered the last acute stage and that there was scarcely any possibility that Mrs. Lee would recover. So he kept his watch, as he had done for three nights past, with a feeling of dull sorrow in his heart; but without realizing how black those hours really were. One by one they came like dark forms and took their stations in a circle around the bed; but the boy don't see them. He watched the night-light burn away, watched the flame sink down within its yellow paper case, and shiver with every movement of the air. The gloom deepened. The corners of the room became darker. The silence of the night buzzed in his ears and the weight upon his eyelids grew so heavy that he could scarcely keep them open. Several times he whispered softly, "Mother," but the only answer he received was the heavy, stifled breathing from the bed. Once the hand beside him on the counterpane moved and he took it

within his own. He felt the feverish warmth steal along his veins; and the drowsiness which is on the very border land of sleep came over him. He saw the things before him as in a dark mist. They took fantastic shapes of old men and grinning faces. The head of the bed appeared to be a great black door, at the sides of which were tall white figures which stirred not. Were they Seraphim and Cherubim, angels of light and love? Surely they were present. For a moment the apparition was so real that he was startled; but the tired brain said: "Those are the bed curtains." Then the black door opened wide and beyond stretched a moonlit sea—dark purple and silver—and a ship that was also of silver sailed upon it. A voice like the passing of the wind whispered: "The sea has charmed my boy. He has sailed away. I could not keep him." And Raymond slept. To this day he wonders whether what he saw was a dream or a reality.

When he awoke the bright sunlight was streaming into the room. Mr. Fargus was kneeling by the bedside.

"Oh," he cried in surprise, arousing himself. "I have been sleeping. Mother."

He touched her hand. It was cold. The frozen North holds not such coldness. It pierced to his heart.

"*She* is sleeping now, my boy," said the clergyman, softly. "Pray with me."

* * * * * * *

In the afternoon of the same day Marian said: "Raymond, won't you sit down? You have been wandering about all day. Sit down and talk with me."

"I can't sit down, Marian, and I can't talk. Don't mind me." And he went up stairs humming:

> "The sunset died in the sky, heigh ho!
> The darkness crept over the sea;
> And the wind arose with a tale of woe,
> And laid its burden on me, heigh ho!
> And laid the burden on me."

Marian went out into the garden in front of the cottage to gather flowers for the dead; but the first white rose she touched seemed to say, "Life is so beautiful," and the little

yellow and red geraniums looked up and laughed and said, "We are happy." So Marian sat down in the porch by the door and her thoughts carried her away to the old Indian home and to the grave in the cemetery at Lahore where the mother she scarcely remembered slept in loneliness.

Raymond aroused her from her reverie.

"I am going down to the beach," he said; "I can't bear the house any longer. Do you mind?"

"No. But don't be long, Raymond. Papa and Mr. Fargus will be back soon, you know. They said they wouldn't be more than an hour or two in Seahaven."

The afternoon was then fully half spent. Not a soul was on the beach. The sea was as smooth as glass and a summer haze was in the air. Two fishing smacks were on the shingle, with their brown sails and the nets stretched over them to dry. Raymond laid down in the shadow of the furthest boat, and the familiar things around him—the sunlit peace that seemed to drowse upon the cliffs, and the little waves that ran up the shore and scampered away as though frightened at their own temerity—all seemed cruelly indifferent to his sorrow; for they were like playfellows who now when grief had befallen him carried on the old game and laughed and made merry without him. The sight made his sorrow harder and harder to bear. He watched the sea sadly, for beyond the shore it stretched away a melancholy waste that seemed to have sympathy with him, until after a time he fell asleep. He slept until the sun had sunk behind the cliffs and the heaven was flushed with red, and the tide was far away from him out on the sand where the great black rocks are; and the sea beyond was a purplish gray. A little chill wind had arisen which shivered upon the surface. When he awoke he would have leaped up and hurried home but, a voice at the other side of the boat arrested him and fixed him to the ground.

"Mrs. Lee? Mrs. Fargus, you mean. Mrs. Lee!"

It was Zipcy's voice, and it was like a snarl.

"What are you talking about, Zip," exclaimed another voice, which was Joe Slagg's.

"Would you take me for a fool, Joe?"

No, Joe wouldn't; and he frankly acknowledged it, which pleased Zipcy.

"Well, then, call her Lee if you like, but her name, if you want to put a Mrs. before it, is Fargus."

"Mebbe you're right, Zip. Mebbe you know something, as...."

"I know these clergymen, Joe, that's what I know; full o' text and iniquity, damn 'em. They has too much of their goodness before people. There ain't none of it left when they shut their own doors."

"Don't you think she was married, Zip?"

"Depends upon your idea of marriage, Joe."

"Oh, no, Zip; I tell yer yer wrong."

"Wrong, am I? Then just tell me why a lady should come to live here with all new things, as you yerself know, and see nobody but the parson, which you know, too; no friends, no relatives—and, more than that, you look at Raymond Lee and see if you can't recognize the parson in his face. Why, it's as plain there...."

Zipcy's sentence was abruptly ended, for Raymond rushed from behind the boat and threw himself upon the little 'bus driver. Zipcy was like a baby in his hands. The lad's fingers gripped around the old man's throat, and the two fell heavily to the ground. The red sunset flashed for a second into Raymond's eyes as he fell and he saw a fearful face looking into his—*but it was not Zipcy's*. He could distinguish the features only dimly, as though they were partly hidden by darkness, out of which peered two eyes burning with ferocity and terror. In an instant they vanished; for Raymond fainted.

Marian was running down the cliff road, and she saw the struggle between Raymond and Zip. Her father and Mr. Fargus had returned from Seahaven (by the way, Zipcy had given up driving the 'bus, and, as he said, his nephew reined in his stead), and she sat out to bring Raymond home for tea.

"Oh, what has happened, Mr. Slagg," she cried, bending over Raymond.

"Zip—ere—was saying something, Miss, and Master Raymond there 'e took offence."

Zipcy, who was more frightened than hurt, was sitting on the beach rubbing himself.

"That's enough, Joe," he said.

Joe Slagg, admonished thus, changed the subject by filling his hat with water from a pool in the sand, and bathing Raymond's face. The lad revived, and Marian, who was holding his head on her lap, bade Slagg conduct Zipcy home and tell some one to hurry down to her from the cottage.

"Raymond, don't you know me," she asked, as the lad rolled his head restlessly from side to side. She put her hand on his forehead.

"That is nice," he murmured, "very nice. Oh, mother, is it true?"

"Is what true, Raymond?"

He raised his head quickly. The bright look of expectation faded instantly.

"You are not mother," he said bitterly, and he staggered to his feet.

His tone stung the girl so that the tears came into her eyes.

"Raymond," she pleaded, "let me try to be a part of all she was to you."

A mocking laugh was the answer she received.

"You are only a girl, Marian."

Mr. Fargus and Mr. Pilgrim arrived in a state of great excitement.

"What did that tinker frighten us for," asked the latter, blowing and puffing after a run down the cliff. "What has he been doing, Marian?"

"Nothing, papa. He is not well; he fainted."

"Fainted, eh? Well, you do look white about the gills. Take my arm, lad. You gave me a leg upon this cliff once. I'll return the compliment now."

What surprised Marian was the sulky manner in which Raymond avoided Mr. Fargus.

* * * * * * *

Zipcy hobbled over to Joe Slagg's cottage that night "for a friendly call," he said; but as he was departing he whispered to Joe:

"I wouldn't say anything about what I told you on the beach, Joe; I think I am all wrong, you know."

Herein Zipcy lied.

And, too, that night Marian put her arms around her father and sobbed with her head on his shoulder.

"Papa, take me to London soon."

"What, my Marian, are you not happy here?"

The tears flowed faster for reply. But surely there was no cause for Marian's weeping. What disenchantment had come to *her* in Circe's cottage? Did she weep because there was a new light dawning in her life—and it was strange?

* * * * * * *

Mrs. Lee was buried in the little churchyard in St. Michael's. On the day after the funeral, Raymond sat out with Mr. Fargus for London. Nine-tenths of our conclusions or judgments are not "arrived at," as the every-day phrase runs. On the contrary, in most cases they force themselves upon us completely formed and definite, independent of any conscious mental process on our part. Despite subsequent efforts to cast out the odious belief, Raymond was convinced that Zipcy had spoken the truth on the beach concerning his (Raymond's) origin and the real relationship between his mother and Mr. Fargus. What the eye has once seen cannot be hidden from the mind by turning the back to it, and as Raymond found he could not do this, in spite of efforts made in despair and agony, he deliberately faced around again and confronted the belief which it was impossible for him to reject. At once a multitude of hitherto unregarded facts, only feebly held by the memory, arose to corroborate and strengthen what Zipcy had said. Devilish was their potency. Evil tongues whispered to the lad out of every remembrance of his quiet, happy life in St. Michael's, and Raymond had no power to silence them. Then came a determination to possess the entire truth of the matter. Raymond vowed that he would lose no time in forcing Mr. Fargus to make a full confession. That brought at least some comfort, as decision to act usually does in a mental crisis. But determination to the inexperienced is as dangerous as a weapon in uncertain

hands, and Raymond wounded himself when the opportunity for action came, as it did come after several weeks of waiting in London.

It happened in this way. Raymond was reading one afternoon in Mr. Fargus' library, and the clergyman was writing. After a while the latter pushed the papers away from before him.

"Raymond," he said, speaking slowly, "it is time, I think, that you should know something of your position and, at least, begin to prepare yourself for making some determination about your future."

"Well, sir, I am ready, I am sure."

"Don't misunderstand me at the outset, my boy. Don't think I want to hurry you; there is no hurry. None at all. This home, such as it is, is yours always. It is not mine a bit more than it is yours. Never forget that. But your poor mother's affairs are all settled now and you have an income assured to you of, I should say, fully £200 a year. That's something to start with, isn't it?"

"Where did it come from?"

"What a question, Raymond; from your mother."

"I know; but where did she get it from?"

"Your father."

"My father! Who was my father?"

"Never mind that now, Raymond."

"I do mind it, Mr. Fargus; I would like to know."

"He was a great writer, Raymond. I will tell you some day. We will talk about yourself now. Have you any...."

"Tell me what he wrote."

Raymond perceived that Mr. Fargus was perplexed and annoyed.

"He was a scientist. As I was about to ask, Raymond...."

The lad, however, saw his opportunity and resolved doggedly not to let it slip by him. He arose and half pleading, half sternly asked, "Won't you tell me the name of one of my father's books? I want to know. I must know. I will know."

The lad stood trembling with excitement.

Mr. Fargus turned pale.

"What do you mean by this, Raymond?" he asked

"Oh, you are trying to deceive me, Mr. Fargus. I know it. You say my father was a great writer. Tell me, then, the name of one of anything that he wrote."

"Be calm, be calm."

"I won't. Tell me. Tell me."

"My boy, I cannot. I am bound by promise to your mother not to."

"To my mother! You lie! You are my father. I know it."

The clergyman sank back in his chair as though he had been struck.

"Hush, hush, Raymond! In heaven's name be silent. Do you realize what you are saying? O! my God!"

"Bah! hypocrite," Raymond cried wildly. The pent-up anger of weeks was freed. The lad spat at the clergyman. "Hypocrite," he cried again and again. Then his feeling turned upon himself, and almost choked him. "I don't care," he wailed. "I—renounce—I—O, mother—" and he rushed out of the room.

"Raymond! Raymond!" gasped the clergyman, rising.

But before he could say another word he heard the front door slam. The sound went through the house. Effort was paralyzed. The clergyman sank down in his chair.

The question had been asked.

To be continued.

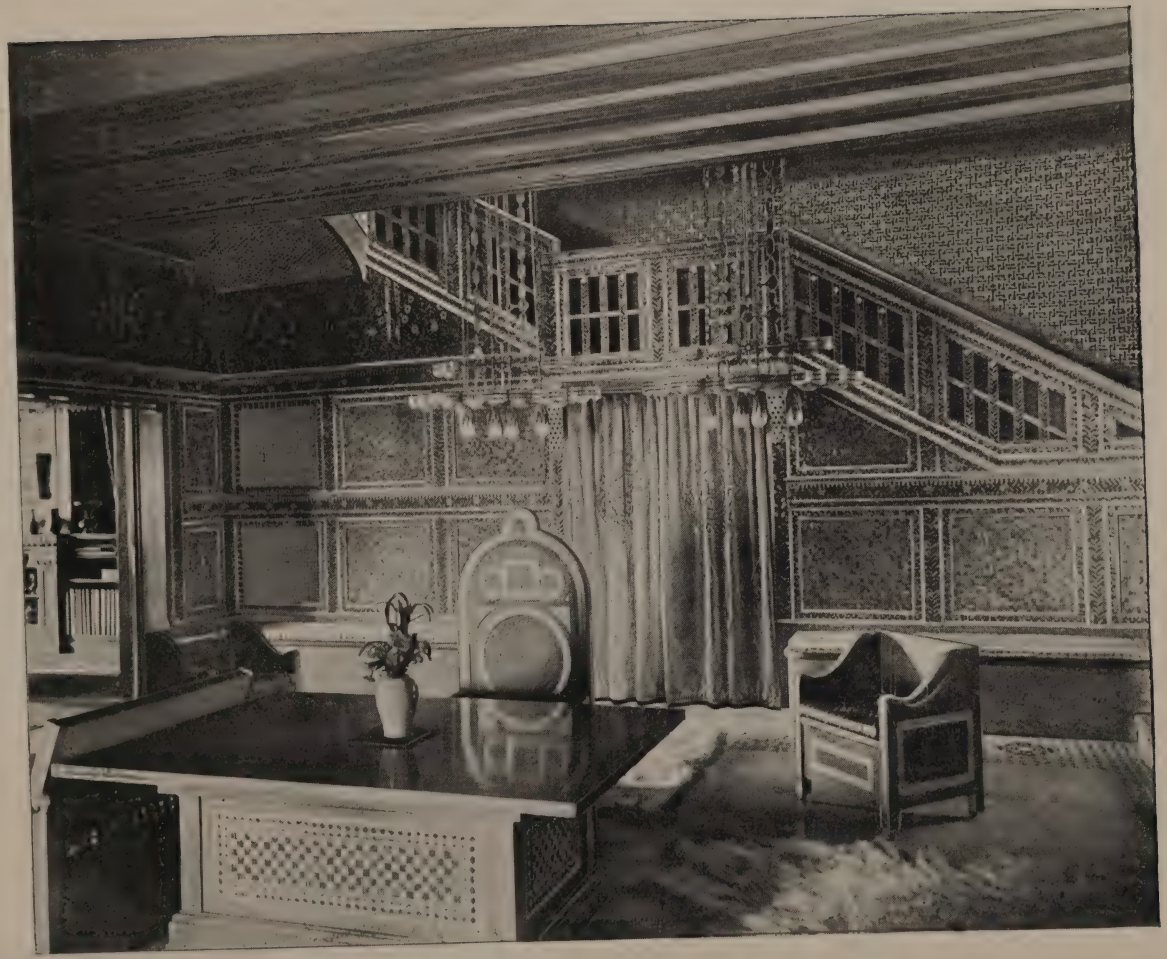


World's Fair, Chicago, Ill. CENTRAL ENTRANCE, WOMEN'S BUILDING. Sophia Hayden, Architect.



World's Fair, Chicago, Ill. INTERIOR OF WOMEN'S BUILDING. Sophia Hayden, Architect.

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CHOICE IN ARCHITECTURAL STYLES.

THE architect of our age finds himself in a position in which no architect of any other age ever found himself. He has to choose his style. Nothing like this has ever happened before. There have been periods of transition in which an architect has had to choose between two styles; but he has never had any choice wider than that. But the architect of the nineteenth century can choose among all the styles that have been in use since men began to build. If he chooses some out-of-the-way style, something of which nobody in his own time and place has seen the like, he has to take his chance, as all revolutionary innovators have to take their chance. He may be laughed out of court at once, or he may make a revolution in the taste of his age. But he can make the experiment in a way in which nobody in earlier ages could have made it. We talk of the style of this or that century; the nineteenth century stands distinguished from all earlier centuries by having no style of its own, but imitating the styles of all earlier centuries.

It is perfectly certain that a Greek architect of the fifth century before Christ could not have built in any style but the natural Doric of his own age and country. Nothing else was likely to come into his head; there was nothing to put anything else into his head. He was not likely to imitate an Egyptian or a Persian building. Even those who hold that the first rudiments of Greek architecture were learned from Egypt would not deny that, at the time of the building of the Parthenon, Egyptian and Greek art had parted so widely asunder that they had nothing in common except their simple constructive elements. The Egyptian and the Greek alike made columns support an entablature; but neither was likely to imitate the particular kind of columns and entablature which the other built, and, we may add, could not help building. In the like sort, an English, French, or German architect of the fourteenth century after Christ could not help building in the style which we commonly call Gothic. As the Greek could only set columns to support an entablature, a particular kind of columns to support a particular kind of entablature, so the mediæval architect could only build with arches, he could give his main arches none but the pointed form, he could give his ornamental details only such shapes as were in harmony with the pointed arch as the main feature of construction. Each had a necessity laid upon him. We may say that neither could, if he had wished, have built anything different from what he did build. It is quite certain that none of them ever wished to build anything different from what he did build. Each built according to the universal taste of his time, a taste which he himself shared in all its fulness. It does not in the least

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follow that the thoughts, even of the Greek, much less of the mediæval architect, were at all kept in hard bondage. The Greek had some freedom; the mediæval architect had much more. Greek architecture was always changing; mediæval architecture was always changing much faster. The Doric column and its adjuncts were constantly losing their massiveness, from the seven at Corinth to the two or three that stand up at Nemea. The correct belief is that the Nemean architect went too fast, that he should have stopped at the exact proportions which were lighted on by Iktinos and Kallikrates on the Athenian akropolis. Sculpture too advanced, and architects knew how to make use of its advances, from the grotesques at Selinous to the works of Pheidias. Presently new forms of capital came in, new proportions of columns, new adornments of entablatures. The Ionic and the Corinthian, the Greek and the Roman forms of each, the Roman combination of the two, all had their day. The Olympieion of Athens was finished by Hadrian after a widely different sort from that in which it had been begun by Peisistratos. There was constant change, if less speedy change than in some other times and places. The architect had often a good deal of room for choice. The Nemean architect might have made his columns of exactly the same proportion as those of the Parthenon; he chose to make them more slender. One architect chose to adopt the new Ionic forms; another clave to the elder Doric. In the age of Hadrian, Doric became fashionable again, just as Italian became fashionable in England in the seventeenth century and Gothic again in the nineteenth. Some daring men ventured to bring together the features of two distinct orders. At Aosta, Corinthian columns may be seen supporting a Doric triglyph. The breach of rule is frightful; but the actual building does not look amiss. Here was choice, but choice within certain bounds. There must be columns and entablatures, there must be columns and entablatures of a particular kind. For wide as is the difference between the simplest Doric and the most enriched Corinthian, the difference is small compared with the difference which parts both from the buildings of Egypt. Both speak the same language, though in different dialects, in different stages. All buildings which cleave to the Greek construction and do not bring in the Roman feature of the arch, belong to one general style; but within certain bounds the taste of one age might depart from the taste of an earlier age, the taste of one man might vary from the taste of another man.

The Greek architect then had some measure of choice. The mediæval architect had a much greater measure. First of all, he had a much wider choice than the Greek architect as to the shape and outline of his buildings. One can hardly say that there were any Greek buildings besides temples; there certainly were no other great architectural buildings. The rest are either military works, works of engineering rather than of architecture, or else small things like the monument of Lysikrates. A gateway is simply the columns and entablature over again, and in a theatre there is as little building as possible. Wherever there was a chance, the theatre was not built, but cut out of the hillside. The different varieties of temples allowed a certain amount of choice; still all followed one general pattern, and in their main outlines there can hardly be any difference. With the mediæval architect churches came first, as temples did with the Greek; but there were many other types of buildings besides. Monastic, municipal, and domestic buildings supplied endless varieties of form; a castle was not purely military, and gateways were of many designs. The churches too were not, like Greek temples, all of one outline; there were infinite shapes to choose from. Each kingdom, each district, had its favorites, and there was a wide choice even within a small district. The mediæval architect could give his building almost any outline and proportion that he liked best, and his choice in his architectural detail was equally free. He could choose, he could invent, amidst endless varieties of pillars, mouldings, windows. The prevailing taste in such matter was constantly

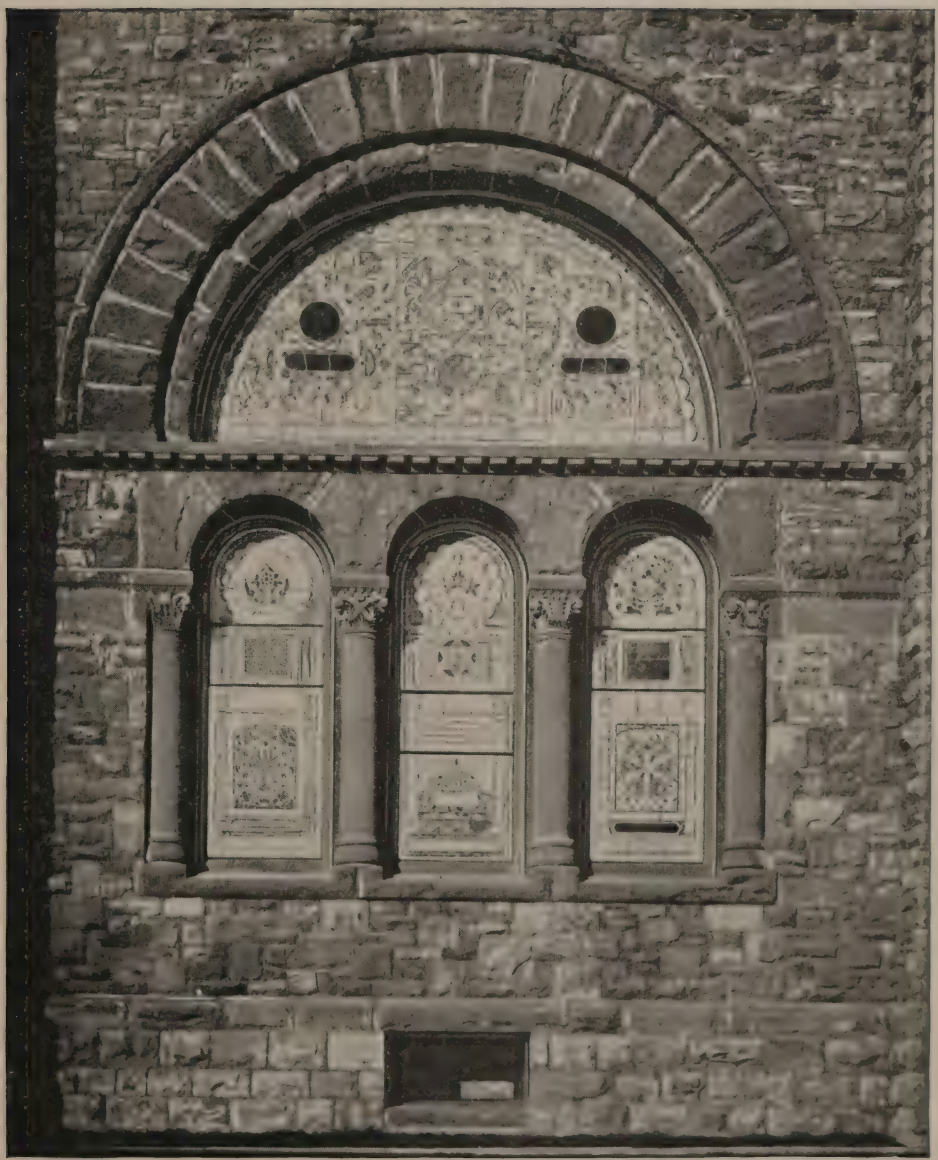


Buffalo, N. Y. TEMPLE BETH-ZION. E. A. & W. W. Kent, Architects.

shifting, and even within the prevailing taste the choice seemed boundless. Who could check the fancy of the carver of a flowered capital in the thirteenth century or of the designer of a traceried window in the fourteenth? Yet the mediæval architect, with his wide choice, the Greek architect, with his far narrower choice, both worked within certain bounds. Neither brought in, neither thought of bringing in, anything inconsistent with the general principles of his style. One built in the Greek fashion; he could not build in any other; it never came into his head to build in any other. The other built in the Gothic fashion; he could not build in any other; it never came into his head to build in any other.

In the history of architecture all times are in a sense times of Transition. The art never stands still; it is always changing. But certain times are specially times of Transition, times when the change that is gradually going on is change not merely of detail but of principle. There are times in which one style in the widest sense supplants another, when some new principle of construction is brought in, when it gradually makes its way and supplants some earlier principle, and lastly, gradually like the rest, works out a system of ornamental detail suited to its own construction. I have always held, though I know that to many the saying must sound like a paradox, that the whole time of the classical Roman style was a time of Transition. It was a time in which men were trying to bring into union the construction of the Greek, with his columns and entablature, and the construction of the Roman, with his arches and piers. Diocletian showed at Spalato that the arch and the column could be combined; he made therein the beginning of Romanesque. Then again, there is the time of Transition between Romanesque and Gothic, when the pointed arch has been adopted for the main constructive features of the building, but where it is still gradually working out for itself a system of ornament which shall suit the pointed arch, instead of the earlier system of ornament which suited the round arch. In both these times builders had a wide range of choice, and in the latter Transition especially the combinations are singularly instructive. And be it never forgotten that in architecture, in language, in everything else, the choice of particular men is being ever exercised, even if sometimes unwittingly. We talk of growth, development, decay, corruption, and so forth; but styles, fashions, modes of speech, do not really grow like a tree or decay like a tree. The growth and the decay is really the result of a vast number of voluntary, if unconscious, acts on the part of particular men, each of whom might have acted differently, if he had chosen. All architectural development is the result of a series of experiments, sometimes perhaps unconscious, but still voluntary. And changes in the great features of a style must have been deliberate acts. He who at Spalato first set an arch on a column, he who somewhere first set a pointed arch on a heavy Romanesque pillar, must have known perfectly well that he was making a bold experiment, though he could not have known to how great a revolution in art his experiment would lead.

In these two times of Transition there must therefore have been a large exercise of individual choice, but we cannot say that there was any deliberate choice between two styles. The innovators were not consciously devising a style or changing one style into another. There was no thought of exchanging one kind or style for another. That process could not come till it was proposed to forsake the existing style of an age and country, and to adopt instead the style of some other age or some other country. This, in the form of an attempt to exchange the prevalent Gothic for the supposed classical style, went on in Western Europe in the fifteenth, sixteenth, and seventeenth centuries. In this case men make a deliberate and avowed choice. They said: We will leave off building in one style and will build in another style instead. In Italy indeed something of the kind had happened already. Italy had in the twelfth century developed for herself one of the noblest styles that the world ever saw, her own natural Romanesque, the admirable style which may be so well studied



WINDOW IN TEMPLE BETH-ZION.

Buffalo, N. Y. E. A. & W. W. Kent, Architects.

at Pisa and Lucca. Presently came an attempt, a most unsuccessful attempt, to imitate the Gothic style of the lands beyond the Alps, a style thoroughly at home in England, France and Germany, but which never took any real root in Italy. The older ideas were never quite driven out; the round arch never went altogether out of use; it was easier therefore in Italy in the fifteenth century to supplant both the natural Romanesque and the imported Gothic by an attempt to fall back on the classical Roman style. Here was a distinct case of choice, such as had never been before. And when the so-called *Renaissance* crossed the Alps, the choice was still more deliberate. Some said: We will give up the style in which our forefathers have built for three hundred years, and we will build instead in the style which has lately been invented in Italy. And others said: No; we will have nothing to say to this new foreign style; we will go on building as our forefathers built before us. So, almost in so many words, said the chapter of Beauvais in the sixteenth century. They determined of set purpose to finish their church in the old style and not in the new, and to build them a tower which should be higher than the cupola of Saint Peter. So in England more than a century later, Sir Christopher Wren, called on to rebuild Saint Paul's, said deliberately: We will rebuild this church in the new style and not in the old. And the most instructive thing of all is that for a long time neither side could do exactly what it wished to do. Each was unconsciously influenced by the other. Those who wished to build in the new style could not wholly get rid of the tradition of the old. Those who wished to build in the old style could not wholly escape the attraction of the new. The result is one of the most curious pages in the whole history of architecture, the record of the times when some were consciously striving to build Italian and others were consciously striving to build Gothic, but when, as a matter of fact, both built something which was not exactly either the one or the other.

This Transitional style, this most instructive mixture of Gothic and Italian detail, is in England chiefly to be studied in houses; but in France many great churches were built in it. In most of them the general design is Gothic; it is most curious to trace how the Gothic detail is gradually supplanted by the Italian. Sometimes, both in England and France, there is a conscious return to Gothic. This revival is specially seen in the college buildings at Oxford. The attempt is seldom quite successful; but it is often near enough to produce the general Gothic effect. Here was deliberate choice, here was deliberate reaction, an intentional falling back upon older forms. But there was something more than mere imitation. The Gothic tradition was not quite dead, and some of the builders of the seventeenth century certainly knew how to breathe a new life into it, if only for a moment.

In all this there was, what there had never been before, not mere gradual and silent development, but a conscious struggle between styles, an avowed battle between two rival artistic ideals. The Italian style succeeded throughout Western Europe. In Italy at least it became a really new style; for the revival Italian is something quite different from the classical Roman. Choice too, less lucky choice than that of either Gothic or Italian, came in when men tried simple imitation of the old Greek architecture, and set the portico of a Doric or Corinthian temple to act as the incongruous shell of some English building of the nineteenth century. At last there came another time of conscious struggle, another distinct battle of styles, when the Gothic revival began. First in churches, then in other buildings, men tried to bring back the Gothic of the past days of their own land instead of the Italian which had been brought in from other lands. Or more truly, art had fallen so low in the nineteenth century that the question often did not lie between Gothic and Italian, but between Gothic and no style at all. But we can hardly expect that the buildings of the Gothic revival of the nineteenth century will have the same interest for the architectural inquirer two hundred or three hundred years

hence, which the buildings of the sixteenth and seventeenth centuries have for us now. The revival has been too conscious, too purely imitative, purely imitative in a way in which the revived Gothic of the seventeenth century was not. After the Gothic revival had got beyond its first rude beginnings, there has often been



INTERIOR OF TEMPLE BETH-ZION.
Buffalo, N. Y. E. A. & W. W. Kent, Architects.

a good deal of knowledge, but there has not been art in proportion. Our modern Gothic buildings, being simply imitations, skillful or unskillful, have had nothing of that mixed character, mixed in spite of the architect himself, which has been the most instructive feature in all earlier Transitions, and which has been a sure witness to the true life of both the contending styles.

Still, as far as choice goes, the Gothic revival and the opposition to it have made a wider choice open to the builders of our age than ever was open to the builders of any other age. The strife has not been simply a strife between Gothic and Italian. Every age of English Gothic has found its imitators, and many foreign forms of Gothic have found imitators also. Meanwhile some have stuck to the Italian of the past generation, while others have brought in various styles from various quarters and various ages, and some have found an artistic relief from strife in that absence of style which is called the style of Queen Anne. The result of all this is that the architect of the last years of the nineteenth century has an absolutely free choice ; he is, unlike the architect of any other age, fettered by no traditions. In the younger lands no traditions have grown up ; in the older lands all traditions have been cast aside. For the first time in the history of art,

it is open to the designer of a great building to build it after any sort that seems right in his own eyes.

Such freedom is hardly wholesome; for it is simply freedom of imitation. The modern architect does not, like the architect of any earlier time, feel called, by some delicate touch of detail, to improve a style whose general principles for the unconscious impulse which constrained the architects of other ages to build after this fashion or that. But it would be better than every man doing simply what is right in his own eyes.

The unlucky thing is that we are all so used to do what is right in our own eyes, and we, not unnaturally, so thoroughly enjoy the freedom,



ENTRANCE, TEMPLE BETH-ZION.

Buffalo, N. Y. E. A. & W. W. Kent, Architects.

he cannot help following. He sits down and thinks which, of all the styles that have been since men began to build at all, he shall imitate. This is not a good state of things; but it cannot be helped. We have at this moment no style, no traditions; we must imitate something. The only way either of developing a new style or of really falling back on an old one would be a general agreement as to which style should be imitated. Such a conscious agreement would be a poor substitute that such an agreement is not likely to be reached very easily. Still there can be no harm in talking about the best way of coming to such an agreement. First of all, we need not look for an agreement of the whole world, not even for an agreement among those parts of the world which have most to do with one another and most largely influence one another. That is, we need not constrain all Western Europe and North America to make the same choice. It is as reasonable

that the different nations of those lands should build in several different styles as that they should speak several different languages. It does not even follow that countries which speak the same language should build in the same style. The choice in each country should be regulated by the history of that country. I should say to each, Fall back on the latest really native style of the country, and develop from that point. You must thus be imitative for a while; you need not be imitative for ever; and it will be a gain, while you are imitative, to be imitative on some intelligible principle. I should therefore say that in England, France, and Germany, the right thing is to fall back on the latest Gothic of the three countries, the latest Gothic untouched by Italian, and to develop from that point. We cannot be sure that the process of free natural growth will ever begin again; but it has surely more hope in this way than in any other. I should say that in Italy the right thing was no less to fall back on the latest native and natural style of the country, the noble Romanesque of Pisa and Lucca, before the unlucky imitation of Gothic began. Each nation would thus have a good starting-point in its own artistic history. It would start from a point at once good in itself and suggested by its national traditions.

But what shall we say where there are no national traditions on the subject? How shall we build in a great country which, as far as history is concerned, is a purely open field, a country whose speech is English, but which is placed in the latitude—we cannot always say in the climate—of Italy? In other words, how shall we build in the United States of America? On this head I made up my mind when I was there ten years ago, and what I have seen and heard since confirms me in the opinion to which I came then. I put forth that opinion in a little book called "Some Impressions of the United States." It came to this, that on the whole it is best for America to take as its starting-point the same point as Italy, the true Romanesque of Italy. The first thought, at all events to an Englishman of Britain, was that the English starting-point should be chosen. A land English in speech and English in law might seem to be called on to be English in architecture also. But the case of architecture is not quite the same as the case of law and language. In America the English speech and the English law are traditional. The first colonists took them with them; they took root on the new soil, and the law at least threw out new shoots of its own, living shoots from the old stock. But no form of English architecture is in this way traditional in America. The first colonists took no architectural style with them. They had no great opportunities of doing so. They were not likely to think much about such matters, and one may further say that in the artistic state of England when they crossed the Ocean, there was no one very marked style for them to take with them. It was different with the colonies of some other European powers. Some of the Portuguese settlements, as Madeira, were settled so early that late mediæval buildings are to be found in them. And there are, if I mistake not, considerable buildings of revived Italian in those American lands which once were Spanish. There was no chance of either of these in the early days of the English settlements. When I went to America I certainly did not look to find anything earlier than English houses of the seventeenth century. Those I did rather expect to find; but I did not find any. If there had been such, I might have thought it a sign that the English starting-point should be also the American starting-point. As it is, it seems to me that America has in this matter perfectly free choice. And, on thinking the point over carefully, I came to the conclusion that, on the whole, it would be better for America to choose the Italian starting-point. I looked at the modern buildings in the United States, and it struck me that there was a nearer approach to life and art in those which might pass for imitation of Pisan Romanesque than in those which were clearly imitation of English Gothic. In some of the churches the notion of an English spire had been well caught, to the im-

provement of the general view of several American cities. But, as I have said more fully in the little book to which I have just referred, I saw more of hope in the other class. I will add only one word more. Whatever is the point taken, there must be one style only for buildings of all classes. There used to be people whose notion was that a church should be Gothic, and every other building something else. It is easy to see how this feeling came; but it was a foolish one none the less. At no time of good architecture, in any country and under any religion, was there ever a special style for religious buildings. Pagans, Christians, Mussulmans, such of them as have had any architecture at all, have always had one style only for their religious and their secular buildings. If the starting-point is to be the last days of English Gothic, then houses and public buildings must be late Gothic, as well as churches. If the starting-point is to be the Pisan Romanesque, then churches must be Pisan Romanesque as well as houses and public buildings.

Edward A. Freeman.



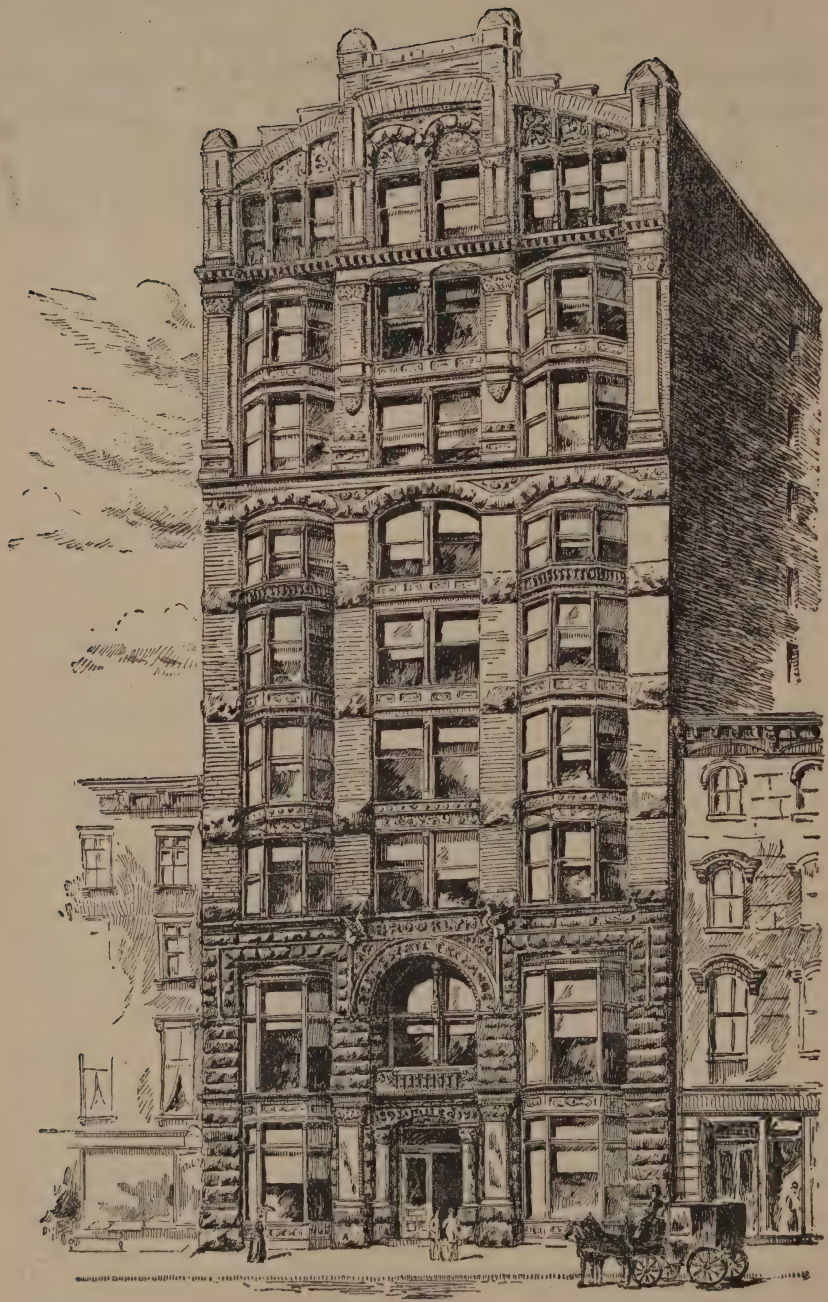
ARCHITECTURAL ABERRATIONS.*

No. 3.—THE BROOKLYN REAL ESTATE EXCHANGE.

THE Brooklyn Real Estate Exchange would be an exasperating building anywhere; where it stands it is simply infuriating. In truth the Brooklynites seem to have devoted themselves of late to disfiguring the part of their city in which the new building stands with great energy and with a success which cannot be questioned. Unfortunately for them this, the region round about the City Hall, is the most conspicuous, the most thoroughly "in evidence" of the whole city, and it is also the most outrageous of aspect. The elevated road is the chief factor in this disfigurement, and perhaps remonstrance about that would be foolish as well as futile. "Business" is the Juggernaut before which we meekly prostrate, not only ourselves, but all our civic adornments and proprieties. Twenty years ago the surroundings of the Brooklyn City Hall were by no means unpleasant. The aspect of things was a little provincial, perhaps, and certainly more than a little suburban, but it had a certain seemliness and a certain keeping, which have now fled away. Anything like the congeries of ten-story office buildings and two-story sheds and litter and confusion that now characterizes it can scarcely be seen anywhere else this side of the Rocky Mountains. It looks, indeed, like a mining camp with a "boom" in active operation. It does not look like a Western city. It is much too "Western" and too crude. The inhabitants of Western cities are not remarkable for their æsthetic perceptions, but they are remarkable for civic pride, and the architecture of the City Hall Park in Brooklyn would be impossible where civic pride asserted itself. Such a spectacle could not be seen and would not be suffered in St. Paul or Minneapolis or Omaha or Kansas City. Yet it is suffered without remonstrance by the inhabitants of the fourth city of the Union with a history going back two hundred years.

It happens that not only a good, but a singularly admirable, beginning of appropriate architecture was made a quarter of a century ago, in one of the streets that lead into this Babel of to-day, and that is Montague street, to which one of the latest architectural accessions is the Real Estate Exchange. It would be hard to name three more admirable examples in secular work of the Gothic revival in this country than the Brooklyn Academy of Music, the Brooklyn Art Building and the Brooklyn Library. The two former adjoin each

* We are making a collection of "Aberrations," and shall present one to our readers in each number of THE ARCHITECTURAL RECORD.



THE REAL ESTATE EXCHANGE.

Montague street, Brooklyn.

other on one side of Montague street and confront the last just across the way. One can hardly instance three other buildings in either city in a like proximity which manifest so much architectural scholarship and so much architectural thought. A street built up with such things would be by far the most interesting thoroughfare in the United States. But our Juggernaut has rolled remorselessly into Montague street, and the Real Estate Exchange is the awful result.

The three buildings we have been praising were built in the pre-elevator era. "All the better for them," the architectural critic is tempted to exclaim. It happens that the street contains a commercial building, also of the pre-elevator era, which is almost a model of design in its kind, although it is very unnoticeable—nay, because it is very unnoticeable. It adjoins the Library, is of the same height and the same material, but is strictly subordinated to it by being a perfectly plain wall with perfectly plain openings, and serving as an effective foil to the richer front of a building devoted to a higher purpose. If it be not the work of the author of the Library, its architect deserves very special commendation for effacing himself to aid in the production of an architectural *ensemble*.

This kind of commendation cannot be bestowed upon the architect of the Real Estate Exchange, nor indeed, in his capacity of designer, any other kind of commendation. That he had to build a commercial building twice as high as the public buildings in its neighborhood is his misfortune and not his fault. It is his misfortune also that he had to build a commercial building twice as high as it is wide. In truth, he could not have prevented himself from spoiling the street, whatever he did, and even if he had produced something that was in itself worth looking at. He could not have subordinated his commercial building to the public buildings. But he has produced, in the face of studied buildings, a building so reckless, in the face of quiet buildings a building so noisy, and in the face of harmonious buildings a building so discordant as to prove that he went about what to an artist would have been an ungrateful task in gaiety of heart; and he has produced a monument of what may be called aggressive and militant insensibility to architecture.

Look at it, and bear in mind that you do not appreciate its enormity unless you see it in its relations, or rather in its violent denial of its relations. Considered in itself, what strikes one first is perhaps the extreme activity and busy-ness of the front, or perhaps the miscellany of things. These two qualities, the absence of repose and the absence of homogeneousness, react on and promote each other. It is first impure and then unpeaceable, or *vice versa*. A rational designer, given such dimensions, would have tried to simplify his front as much as possible, but this designer seems to have aimed at getting in as many things as possible sideways so as still further to exaggerate the disproportionate height. The continuous bow windows are a common enough device, sometimes justified by the increased outlook they give the tenants, though here the tenants on the sides benefit at the direct expense of the tenants in the middle. Architecturally, the effect is to emphasize the height of the building by cutting it into three vertical slices, in comparision with which the horizontal lines are almost effaced. In fact so unfortunate is the designer that the chief horizontal line above the basement is one that had much better been omitted. A two-story basement of red granite is proportionate enough to a superstructure of seven stories of brickwork. But obviously the treatment of the stories through which the bow windows continue should be similar. Here the openings in which the bow windows are placed are closed above the sixth story, without rhyme or reason, and the bow windows thus rudely interrupted. The interruption is the more inexcusable because it divides the front into four parts, between which there is no harmonious relation: $2 = 4 = 2 = 1$ is not a proportion. If the designer had not interrupted himself he would at least have had a threefold division of a kind, which would be so much gained. The interruption consists of distres-

singly weak-looking segmental arches, which cross the front in a feebly wobbling line, much more conspicuous than the horizontal moulded course above, while the bow windows go on for two stories more as if nothing had happened. Meanwhile the flanking piers are variegated by the introduction of pilasters running through those two stories, and the central piers by pilasters on corbels —actually pilasters on corbels running through the upper of the two stories so as nicely to thicken and strengthen the pier at the top. The top is a wonderful thing. There is a segmental gable which would indicate a curved truss roof, if anything in this kind of design ever indicated anything, and this should complete the front. But an inability to stop when one has done is another mark of this kind of design and is manifested here in the protrusion of all the piers into uncouth terminals and in the addition of crow steps over the segmental gable.

It has been intimated that the expression of structural facts is not the basis of this architecture. None of the detail, indeed, has any significance. All these terminal features are obviously unmeaning. So is the corbelled pilaster. So is the detail of the entrance. A pilaster of polished granite seems here to convey a pier of rough wall, which would be a delightful arrangement. But it is not the fact. The pilaster and its capital are projected from the wall so as to show that it is not doing anything, but is only just architecture. There is not a studied or scholarly detail in the whole front; that is, not one that need detain the observer, or has detained the designer, with the possible exception of the heraldic beasts over the arch of the second story; and it does not seem a hazardous conjecture that these were designed by the carver and not by the architect.

It may be doubted, however, whether this rampant and riotous structure can properly be called an aberration. It is terribly typical of the work of the untrained and reckless American "artchitect," whose self-complacency is unusually conspicuous in this edifice, merely because it has encouraged him to put up such a building in such company. To compare this edifice with its neighbors is to get a very good lesson in architecture, except for the unteachable, of whom seems to be the designer of the Brooklyn Real Estate Exchange.

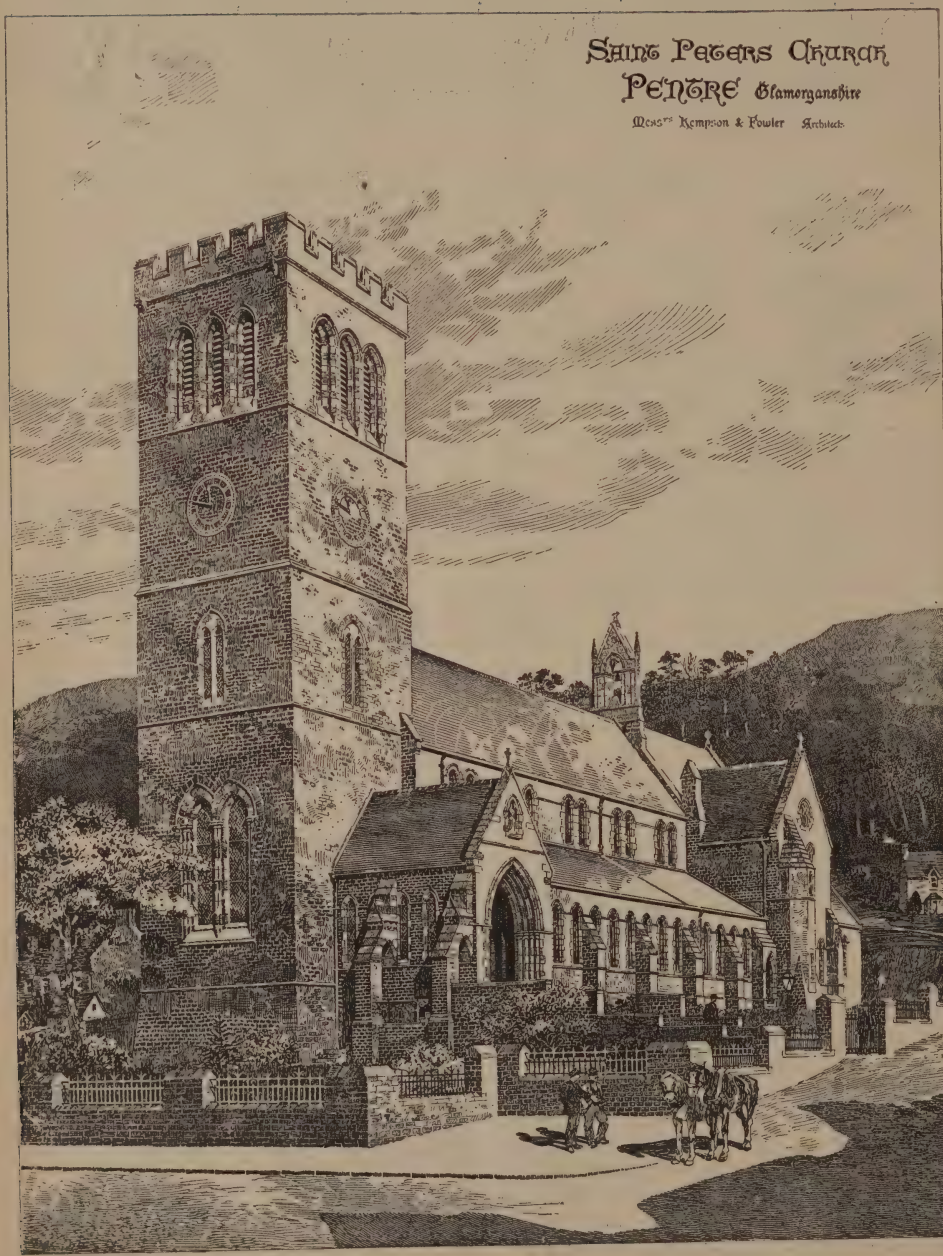


THE BATTLE OF THE STYLES.

(CONCLUDED.)

BEFORE entering upon our third inquiry it may be well to recapitulate some of the conclusions reached in our first paper. It was there contended, as the reader may remember, that of the two alternatives between which the non-existence of a true modern style places the architect—namely, the employment of historic styles or the invention of a new one—the latter has been proved hopeless by the lamentable and grotesque failure of every attempt it has prompted; and that the real question before the architect is as to the way in which historic forms should be employed. The writer endeavored to show what were the true principles underlying the rational use of historic forms, and called attention to the necessity of thoroughly mastering at least one historic style, and to the difficulty, not to say impossibility, of mastering more than two in an ordinary lifetime. It was pointed out that the style selected should be one possessing the seeds of vitality and progress, and consequently one not already developed into final completeness in the past, and that it must be capable of adaptation to our special needs. It must in some degree correspond to the movement and demands of modern taste, which though it may lead and develop, it must not too far outrun. Convenience and logic should not be overridden by the demands of mere historic precedent; the ordering of plan and mass and the general composition should be determined by modern requirements, and the historic style employed to give body and clothing to the structure so contrived, furnishing the details of form and decoration as well as the principles to guide in their combination. And in all these operations the dictates of a cultivated taste are the final law.

III. While the rational application of these principles still leaves open the third query, "Can several distinct styles be concurrently employed without inconsistency," the contentions just rehearsed throw light on the answer. For if historic styles may and must be used in modern work, we must expect to see the forms of different epochs used side by side in our streets until architects be found all of one mind and clients all of one taste; or until the widely varying practice of our time shall converge into the uniformity of a new and vital style, under the pressure of new conditions and a more perfect civilization. So long as one architect finds the sturdy forms of the Romanesque better suited than all others to express his conceptions, while another, with a different cast of mind, prefers the more sumptuous and delicate Renaissance, and a third draws his suggestions of design from the ecclesiastic art of the fourteenth century, this variety will continue; and the question resolves itself therefore into the simple inquiry, "Are these men all pursuing a rational course?" Those who reply in the negative must bear the burden of proof. If but one style must prevail, which shall it be? And no one can answer this. The mere fact of the diversity of modern practice is presumptive evidence against the possi-


Saint Peters Church
Pentre Glamorganshire
Messrs Kempson & Fowler Architects

bility of final agreement upon any one system of historic forms; and two other important facts stand opposed to any such united action. The first is the extraordinary increase in the number of kinds of buildings erected, and in the variety of requirement in buildings of the same kind in our times, as compared with any former period in history. All the great styles of the past have been developed in one, or at most two or three classes of structure. Classic Greek architecture was an architecture of temples. The forms used for stoas and gymnasia were those which had developed in temple design. The Roman styles were developed primarily in theatres and amphitheatres, their temples being free imitations of Greek models. A second and more magnificent phase of Roman design was worked out in the great Thermae, which were the prototypes of many features of Byzantine art. The latter in its turn was an architecture of churches, while in the Middle Ages three or four centuries successively made their contributions to the elaboration of a single type of building, the Cathedral. In the Renaissance the variety of architectural problems was greater; and yet palaces, town halls and domed churches constitute nine-tenths of the architectural monuments of the centuries from the fifteenth to the eighteenth; and in them we trace the whole evolution and decline of Neo-Roman art in Italy, France, Germany and Spain. No commercial buildings (if we except a few *loggie* in Italy, the Bank at Genoa, the Halle aux Blés in Paris, and one or two other scattered examples); no theatres; no railway stations; no parliament houses nor capitols; no post-offices; no museums;* no concert halls; no hotels; no exhibition buildings; no hippodromes; no manufactories; no observatories; no private architecture worth the name, except the palaces of the great lords and merchant princes; none of these multifarious, ever-changing, ever more perplexing problems of our day obtruded themselves into the quiet development of palace-designing.

The second of the two facts referred to is the rapid development in modern times of wholly new principles of construction and of new materials for building, involving changes in architectural practice which soon outrun the slower developments of style and form. The men of historic times never had to deal with the perplexing problem of adapting their customary methods to new and suddenly-appearing materials and to suddenly-revolutionized methods of construction. These difficulties, unknown to them, are so common among us as to pass unnoticed; they are accepted as matters of course. We forget that while it takes decades for a style to crystallize into form, it takes but a year or two, in these days, to revolutionize methods of construction; and the historic style which suits well enough the constructive practice of this year may be wholly incompatible with that of 1893. The architect who uses classic sculptured pediments and Corinthian colonnades upon the legislative palace he is planning, would certainly turn to other resources of design for his railroad station or armory. In other words, there has never yet been developed a system of forms and combinations, an "understood way of building," equally applicable to requirements so various as those of our modern civilization. Whether among the historic styles there be one capable of ultimate development into such diverse adaptations is another question: none has yet received such a Protean development.

Thus, even if architects could unite upon some one style as the basis of their work—an impossible thing in itself—they would find themselves face to face with a problem more difficult than any they have heretofore encountered: that, namely, of adapting a single basic system of form and composition to narrow "sky-scrapers," as well as to long and low and broad railroad stations; to street façades composed of 25-foot slices and to the huge masses of exhibition buildings; to churches and to theatres; to skating-rinks and prisons; to triumphal arches and to

* It must be remembered that the great Renaissance collections of antique art, like many of the modern museums of painting and sculpture, were housed, not in buildings specially designed for the purpose, but in palaces, villas and garden casinos.



CHURCH AND PARSONAGE FOR FRENCH PROTESTANT CHURCH.

London, Eng. Aston Webb, Architect.

clock towers; to market buildings and to State capitols. The style must be equally adapted to hard and unfeeling granite, to noble and delicate marble, to the sturdy and sober limestones and the coarse-grained sandstones; to brick and terra cotta, to wrought and cast-iron, glass, tile, timber, shingled, slated, concrete and plaster buildings. No style that falls short of such universal adaptability need present its claims for universal adoption. It cannot fill the bill presented by the advocates, if such exist, of uniformity in the use of historic architecture. Until such a style be produced, and its claims at least presumptively established, the "concurrent use of several historic styles in the work of our time" will be inevitable, and therefore consistent with reason and common sense, however undesirable it may seem from an abstract and purely philosophical point of view.

But the concurrent or contemporaneous use of several distinct styles may be practised in several different ways. The mixing up in one design of several styles is one thing; the use of different styles in different works or classes of work by the same architect is another; still another case is presented in the contemporaneous use of different styles by different architects, each retaining some one style as the basis of his work.

The first of these three cases gives us eclecticism in its extreme form. It is inconceivable that two or three different systems of design, developed in different ages and for widely separated purposes, and each associated with a particular system of planning and construction, should be equally appropriate for one and the same problem, and at the same time harmonious with each other. The mixed forms of transitional periods mark the tenacious hold of long-established uniformity of practice struggling against innovation and change. These periods are brilliant and brief; brilliant, because of the sincerity, simplicity and earnestness of purpose and the artistic vitality which characterize them; brief, because such sincere and earnest effort is soon rewarded by emancipation from the old into the free atmosphere of the new. The difference is heaven-wide between this and the deliberate and intentional mixing of incongruous styles. Not conviction, not necessity, but affectation is stamped upon such work, unless, indeed, the mixture be the product of dense ignorance.

Moreover, no man can reasonably hope to completely master more than two really distinct styles in a lifetime; but to combine harmoniously the elements of even two requires a masterful knowledge of both, except when, as in transitional times, it is done naïvely under the pressure of circumstances. And it may well be doubted whether any man, having mastered two styles, would venture to attempt marrying them. He, far better than the neophyte, comprehends their incompatibility. I do not refer to the occasional introduction of details, hints and suggestions from one style into work mainly based upon another. We may fairly be accused of having studied to very little purpose if after all that archæology and draughtsmanship and photography have done for us in bringing the past within reach, we can find absolutely nothing in one style in the way of suggestion, detail or spirit which may serve us in our use of another. But it must be confessed that to attempt to do this has its dangers, and none but the most experienced men, with the most cultivated taste, can safely venture upon a path where indiscretions and mistakes of taste are so easy and so disastrous.

Again, styles historically diverse may occur in different works by the same hand, and may be justified on the ground just stated, that there has thus far been found no style capable of immediate adaptation to all the variety of purposes and types of building of our day. The classicist may well be excused if he turns to mediæval models in designing churches, and the mediævalist in like manner may find his customary methods inappropriate for a museum of classic sculpture or a State capitol. No one thinks of blaming him if his open-air theatre or *café-restaurant* in a park—structures in their nature trivial, playful and gay—are

Moorish with cusped horse-shoe arches and plaster diaper-ornament. But these excursions into other styles than that which is one's own by choice and by long practice should be the exception, dictated by strong conviction of necessity. As time goes on, the work of our men of longest and most thorough experience is generally seen to be increasingly dominated by the style which each has found most congenial; practice and study and experience constantly enlarging the scope of its applications, and subduing to its control a larger variety of the knotty problems of modern design.

And if there may be variety in the use of styles in different works by the same designer, still more must we look for variety in the works of different hands. Indeed, there is a touch of the absurd in the outcry against such mingling of styles. It is hardly rational to demand uniformity in the use of historic styles in this age of rampant eclecticism in all fields of life and taste, of triumphant individualism, when authority sits so lightly on men's interests and lives; in this age of archæology, when the different periods of history are made to live again in our imaginations, and one man is an Ægyptologist, and another a Hellenist, and a third an enthusiast in Roman or mediæval lore; in this age of rapid change and transition, when the garments of custom are outgrown in a day, and new discoveries overturn the established order with every decade. The universal adoption of any one historic style would be perfunctory at least; our architecture would lose all spontaneity, vitality and snap, and become monotonous, stiff and formal. No unity of art can be desirable which is not free and natural, like the unity of a plant or tree, a product of the soil and sun and atmosphere that give life to the vital seed. To such free unity of style, consistent with our modern civilization, we must surely come in time, out of this seeming chaos of transition. But we must await the processes of evolution, which may be encouraged, but cannot be hurried. The marshaling of so many styles side by side in modern work is a necessary outcome of history, and some of us can see even here the "promise and potency" of a coming crystal of twentieth century architecture which shall be worthy of its day.

And, indeed, there is nothing absolutely anomalous in this modern mixture. We find something like it in the mediæval art of Italy, where the Byzantine and Lombard and Roman styles were being practised contemporaneously in the same or in neighboring cities and provinces. In Sicily, Norman work jostles the Arabic and Byzantine in many a town and building, and the Byzantine of Venice was at first an out-and-out importation from abroad into the midst of the then-prevailing local style. The same is true of the German Gothic of certain North Italian monuments; and so careless were the Italians always about consistency of style, that round and pointed arches were used again and again in the same buildings long after the first introduction of Gothic forms into that country.

It may still be objected that this concurrent use of various styles, however unavoidable, is not on that account "without inconsistency." To which the reply is fair, that beyond the consistency of perfect mutual harmony, which no one would claim for these juxtaposed examples of various styles, there is the higher consistency with the spirit of the times and with reason and propriety; and this is what was contemplated in the third query. But before proceeding to the brief consideration of the fourth and last question let me pray the patient reader not to confound the ideal concurrence of styles treated of in the foregoing paragraphs with the wretched actualities of which too many examples are scattered about us. That our streets are full of terrible abortions of architecture in various dress is painfully true; but their abominableness lies in their bad design, not in the diversity of their styles. And, on the other hand, the reasonableness of the variety of practice which we have been discussing is proved by the fact that those of our buildings which by general consent receive the highest praise, exemplify a considerable variety of styles. No one would condemn Trinity Church because it is Gothic



Genoa, Italy. DOORWAY OF THE PALACE BRIGNOLE.

nor assert that the Madison Square Garden would have been better if "done in Romanesque," nor wish the national capitol changed into a Francis I. design; nor the "Ponce de Leon" converted into a Roman palazzo. We all recognize that the excellence of these buildings results in large measure from the right choice of the historic dress in which these architectural conceptions are clothed; that is to say, from the appropriateness of the style of each to the special purpose of the building.

IV. To the final question, "Is there hope of developing a distinct system of architectural forms appropriate to our age and civilization," we can only offer a suggestive, not a prophetic answer. But there are one or two considerations full of significance. The first is the vitality and freedom of the best American work in design. This is becoming more and more generally recognized abroad. In wooden architecture applied to dwellings we have evolved a truly national type, belonging to our civilization and easily recognized under all the variations caused by climate and locality.

In the more monumental branches of our art we have by no means emerged into any broad generality of character. But that very vitality and freedom of spirit which in untrained designs takes the form of a wild aspiration for originality, and perpetrates those eccentricities and vagaries which are a cause of weariness to cultured natures, brings forth rich fruit when subjected to the restraints of thorough training and cultivated taste.

The second consideration to be noticed is the earnest purpose and conscientiousness of the practitioners who give tone and character to the profession. They are the true exponents of our art, and no one can be intimately acquainted with them, follow their discussions, visit their offices, mark their desire for the highest good of their art and their disinterested devotion to its cause, without a strong conviction that however faulty their works may sometimes be, they are not thoughtless, nor careless, nor foolish, nor unreasonable designs, and that with such a spirit animating its leaders, our architecture must advance in both artistic quality and national character; must be better in 1895 than in 1892; must be nearer the goal of unity in spirit and system and appropriateness to its age and environment.

Thirdly, our large buildings furnish striking suggestions of convergence towards something like unity of style. Of a number of the best of these, if the mere details of their decorative treatment were suppressed, it would be hard to say whether they were Renaissance or Romanesque in design. That is to say, our modern commercial architecture and methods of construction have developed a style of composition of high basements, many-storied piers and arches, with attic arcades and heavy cornices, to which the details of either of these prevalent styles may be applied at will. Different in detail and even in general aspect as are, for example, the four great hotels just built or building on Fifth avenue in this city, the Holland House, the Waldorf, and the two at Fifty-ninth street, no one could possibly fail to recognize them all as examples of American architecture of the last decade of the nineteenth century. Does not this point to an ultimately consistent, not to say uniform style, characteristic of modern American civilization? And is it not significant that in this battle of the styles the contestants have practically narrowed down to two—the Romanesque and the various forms of the earlier Renaissance? Perhaps neither may finally become supreme; their elements fused in the heat of architectural competition, and subjected to the irresistible forces of environment and practical needs and a purified taste, may finally emerge indistinguishably combined in the crystal of a new architecture, as perfect, as rational, as noble as any that has gone before. If so, it will be an architecture bound by no stiff canon of formulated rule and precedent, fitted only for one narrow zone of climate and of population, but strong enough, and free and large and flexible enough for all the boundless variety of climate, and habit, and mate-

rial and surroundings of this great land. Our "architectural aberrations" are the slag and scoriæ thrown off in this crystallizing process. Our worthiest performances, whether Romanesque or Renaissance in detail, are strongly American in character, and I cannot help thinking them finger-posts (if I may here change my metaphor) pointing to a still more truly American architecture which in some future time, nearer or more remote, shall be worthy of the age and of the people that gave it existence.

A. D. F. Hamlin.





HOTEL WALDORF.

Fifth avenue and 33d street, New York City. Henry J. Hardenbergh, Architect.



CARVED OAK PANEL IN RESIDENCE OF EDMUND COFFIN, JR.
57th street, New York City. Bradford L. Gilbert, Architect.

THE CHICAGO AUDITORIUM.



THE Auditorium Building illustrates how the versatile Western American can combine sentiment with thrift, and demonstrates how he can endeavor to cultivate the service of Mammon simultaneously with an effort to attain his higher artistic ideals. The wish of Chicago to possess an Opera House larger and finer than the Metropolitan, a hall for great choral and orchestral concerts, a mammoth ball-room, a convention hall, an auditorium for mass meetings, etc., etc., all under the same roof and within the same walls, gave birth to the Auditorium proper. The desire that the Auditorium be made self-sustaining, and not like the Metropolitan Opera House, a perpetual financial burden to its owners, rendered necessary the external subordination of the Auditorium itself to the business building and hotel, which, together with it, form the Auditorium Building.

When the design of the Auditorium Building was first intrusted to its architects only two-thirds of the ground and less than one-half of the money finally absorbed by the work were placed at their disposal. But, little by little, the enthusiasm of Mr. Ferd. W. Peck, the chief promoter of the enterprise, met with such response from the business men of Chicago as to warrant the acquisition of greater area for the building site and expansions of scope and scale far beyond the limits contemplated in the conception and development of the original design.

The form in which we find this building is, therefore, the resultant of many conflicting causes and influences. At first glance it may seem a most delightful state of things for the architects of a great building to be compelled by force of circumstances to erect a larger and more costly structure than that called for by the first instructions of their client. But the situation appears far from delightful when viewed more subjectively. After months of arduous toil the many conflicting conditions of the various problems have been harmonized and adjusted to each other, and the many thoughts brought forth by their study have been crystallized into a complete and well-rounded design and expressed in nearly two hundred plans and diagrams. Presto! the conditions change!! All that has been so laboriously thought out and so carefully adjusted must be retraversed and readjusted; not once, but a score of times; in fact, for each successive widening of the financial horizon of the enterprise. While there is an obvious gratification and pleasure



Chicago, Ills. THE AUDITORIUM BUILDING—VIEW FROM MICHIGAN AVENUE. Adler & Sullivan, Architects.

in the consciousness of the widening of one's opportunities, yet this pleasure may be bought at too high a price. Such was the case with some of the developments in the growth of the design of the Auditorium, particularly after building operations had been fairly inaugurated and many conditions had thereby become fixed and inflexible.

But we are dealing with the Auditorium as it is; not with the Auditorium as it might have been had the original project been carried out, nor as it would have been had the final intentions and resources of its owners been known to its architects at the outset.

Considering first the exterior of the building: it is found dignified, impressive, simple and straightforward. Every square foot of street exposure serves commercial purposes, and serves them well. Utilitarian interests have nowhere been sacrificed, not even in the great tower, which, primarily conceived, without thought of its commercial utilization, as a means of indicating the main entrance of the Auditorium and giving it accent and emphasis in an expanse of utilitarian frontage, is now filled from cellar to roof with hotel rooms, and with offices which extend even into the machicolated cornice. Still one sees that the Auditorium is not an ordinary business building, but that its exterior is the embodiment of something nobler and higher than the desire to erect an inclosure for a rent-trap.

As the Auditorium, as such, nowhere penetrates to the street fronts, but is surrounded and surmounted by office building, hotel, etc., the wants and peculiarities of these became dominant in determining the fenestration, and with it the general expression of the exterior. It is to be regretted that the severe simplicity of treatment rendered necessary by the financial policy of the earlier days of the enterprise, the deep impression made by Richardson's "Marshall Field Building" upon the Directory of the Auditorium Association and a reaction from a course of indulgence in the creation of highly decorative effects on the part of its architects should have happened to coincide as to time and object, and thereby deprived the exterior of the building of those graces of plastic surface decoration which are so characteristic of its internal treatment.

In taking up the consideration of the interior, the office building presents no features worthy of especial remark, except perhaps regret that it should have been pressed to completion so long in advance of other parts of the structure as to deny it a share of the richer material of finish and the more elaborate detail accorded to the hotel and auditorium.

The hotel is in one sense a marvel of planning. It is only a fringe, showing a street frontage of 587 feet with an average depth of but 45 feet skirting two sides of the auditorium, the predominant claims of which for space absorb the area usually devoted to the "working department" of hotels. The difficulties arising therefrom appear to have been overcome, for space has been found for kitchen, laundry, bakery, store-rooms and the other adjuncts of the hotel. All appear to be conveniently located and to communication with each other and with the parts of the hotel which they are intended to serve. Despite the limitations of space incident to the peculiar formation of the site, the hotel contains a number of public rooms of decided architectural pretensions and character. The main dining-room in the tenth story is architecturally noteworthy. Its ceiling is a barrel vault, divided into panels by the arched top chords of the supporting roof trusses, in which are set incandescent electric lights as an important part of the decoration. The vault is intersected in each panel by two lunettes which, however, are rather bald in treatment. They should have had sculptured or painted decorations in keeping with the mural paintings in the large segmental tympani at the ends of the barrel vault. (See illustration, page 424.)

The banquet hall is an unusually interesting room, not only because of its construction and location, which is over the auditorium, between trusses of 118 feet span, but also because of its peculiar artistic conception and treatment, at once aggressively unconventional and original and still extremely delicate and



From photographs
By J. W. Taylor, Chicago, Ills.

ENTRANCE HALL—AUDITORIUM HOTEL.



STAIRCASE—AUDITORIUM HOTEL.

refined. In fact, the banquet hall is the culmination of the boldness, originality and refinement which are characteristic of the decoration of this building.

The hotel office, the restaurant, the café and the main parlor are all rooms worthy of notice and study. The latter, 45x95 feet in size, is remarkable because of its connection with a loggia extending along its entire frontage, giving a most interesting outlook upon Michigan avenue, the lake front and over Lake Michigan.



NEWEL POST—AUDITORIUM HOTEL.

In its construction the hotel presents many interesting features. As a multiplicity of pillars would have been objectionable in the public rooms which occupy the first story of the Congress street front, and which were intended in the original design to take up all of the second floor of the same, the floors from the first story upward are carried on 140 riveted girders 2 feet high and of 36 feet clear span each. The front on which these girders occur is 360 feet long and being but 40 feet deep, is given lateral stiffness by four heavy brick walls extending from bottom to top of building. The absence of interior columns resulting from the use of the girder construction permitted a degree of freedom in the handling of partitions and the division into rooms that was found quite useful.

The most daring and conspicuously successful structural features of the hotel are the truss constructions of 118 feet span carrying the banquet hall, weighing 660 tons, over the auditorium, and those carrying over the stage, with a span of 110 feet, a load of 2,500 tons composed of stage machinery, rigging-loft, fly-galleries and four stories of hotel rooms and working departments, all of fire-proof construction. None of these were contemplated in the original plans of the building or prepared for in its foundations. The modest eight-story European hotel first contemplated would have been amply served by the present restaurant and by auxiliary eating halls intended to have been located above the same in the second story. With the increase in area and height of the building came the necessity for a large table d'hôte dining-room and for the banquet hall, as well as for the enlarged kitchen, store-room, servants' quarters, etc., etc. The dining-room itself was placed in the tenth story, with a frontage of 187 feet toward Lake Michigan, while the space required for all of the others could only be secured over the ceilings of the auditorium and stage. An effort was made, by the introduction of long



CORRIDOR—AUDITORIUM.

beams and rails in the walls, to distribute this unexpected additional load, as far as possible, over walls and foundations. Eleven auxiliary trusses of from 75 to 118 feet span were constructed, and connected with the original roof trusses with the utmost care as regards general design and detail, and then protected against injury from fire by incombustible non-conducting inclosures of porous terra cotta and plastering upon wire cloth.

Another remarkable piece of construction is a trussed girder of 40 feet span carrying a centre load of 230 tons in the second story over the main staircase of the hotel. This, however, seems to have been uncalled for. Equally good results as to plan and artistic design could have been attained without the structural complications resulting from the omission of the pillars whose work this girder is intended to do.

The Auditorium proper, with its accessories, occupies an area of 35,800 square feet, out of a total area of 63,500 feet for the site of the building. Its cubic contents are 2,800,000 cubic feet out of a total of 8,300,000 feet for the entire building. Its general dimensions are 118 by 246 feet. To this must be added the spaces occupied for entrances and exits, for parlors and smoking-room, organ chamber and stage dressing-rooms, which encroach upon and penetrate the surrounding business and hotel buildings, some in one story only, others through from two to six stories. Again stair and elevator shafts of the business buildings and hotel make encroachments upon the auditorium. These overlappings and interpenetrations form a Chinese puzzle, which cannot be understood unless illustrated by a complete set of plans and sections. On the main floor the stage occupies a depth of 70 feet, the orchestra 12 feet, the parquette 104 feet and the main foyer 60 feet. The main floor contains about 1,400 seats, arranged in generous sweeping curves



BAR—AUDITORIUM HOTEL.

and stepped up upon the lines of Scott Russell's isacoustic curve, with a total rise of 17 feet. Advantage is taken of this rise to obtain under the higher parts of the parquette an entrance foyer 80x118 feet, and a series of wardrobe and cloak rooms of quite generous capacity. These are at the end of the auditorium, partly under the main foyer and partly under the parquette, opening from the entrance foyer and extending along both sides of the parquette. On the outside of the same are corridors 14 feet wide.

This unusually great rise of the main floor has also made practicable the arrangement of six entrances, similar to the "vomitoria" of the Roman amphitheatre, by which the lower half of the parquette seats are reached without rendering it necessary to climb to the upper level of the main floor. Excessive crowding upon the main stairs is also avoided. The boxes, forty in number, are arranged in two tiers upon each side of the parquette. The lower tier forms an arcade of semi-circular arches with rather light treatment and but little effect of inclosure, while the upper boxes are entirely open. In fact, there is nothing at all of the boxlike and stuffy effect produced by the conventional treatment of the open box. When these boxes are filled with richly-dressed women, the mass effect of the rich colors and stuffs is exceedingly fine and blends quite harmoniously with the forms of the architectural detail and the colors of the decorations.

The main balcony, elliptical in plan, is 80 feet deep at the end, but quite narrow at the sides. It covers the main foyer and overhangs the parquette 20 feet at the end, but is not wide enough at the sides to completely cover the boxes. The seats are also arranged on the lines of the Scott Russell isacoustic curve, which here develops into a rise of about 40 feet from the lowest to the highest seat. Advantage has been taken of this to form two foyers, of which the lower one is 40 and the upper one 20 feet wide. Both have ample retiring and cloak rooms for the exclusive use of the occupants of the balcony. This balcony contains about 1,600 seats, the lower two-thirds of which are reached through twelve "vomitoria" opening out of the balcony foyers. The upper part of the balcony has no foyer, but free communication is established by a broad cross aisle.

Above the balcony are two galleries, each with about 500 seats. The second gallery is not over but in front of the first gallery, advantage having been taken of the favorable sight lines, due to the great depth of the house, to interpose the second gallery between the first gallery and the stage. Approach to the second gallery is had by way of horizontal bridges from the first gallery.

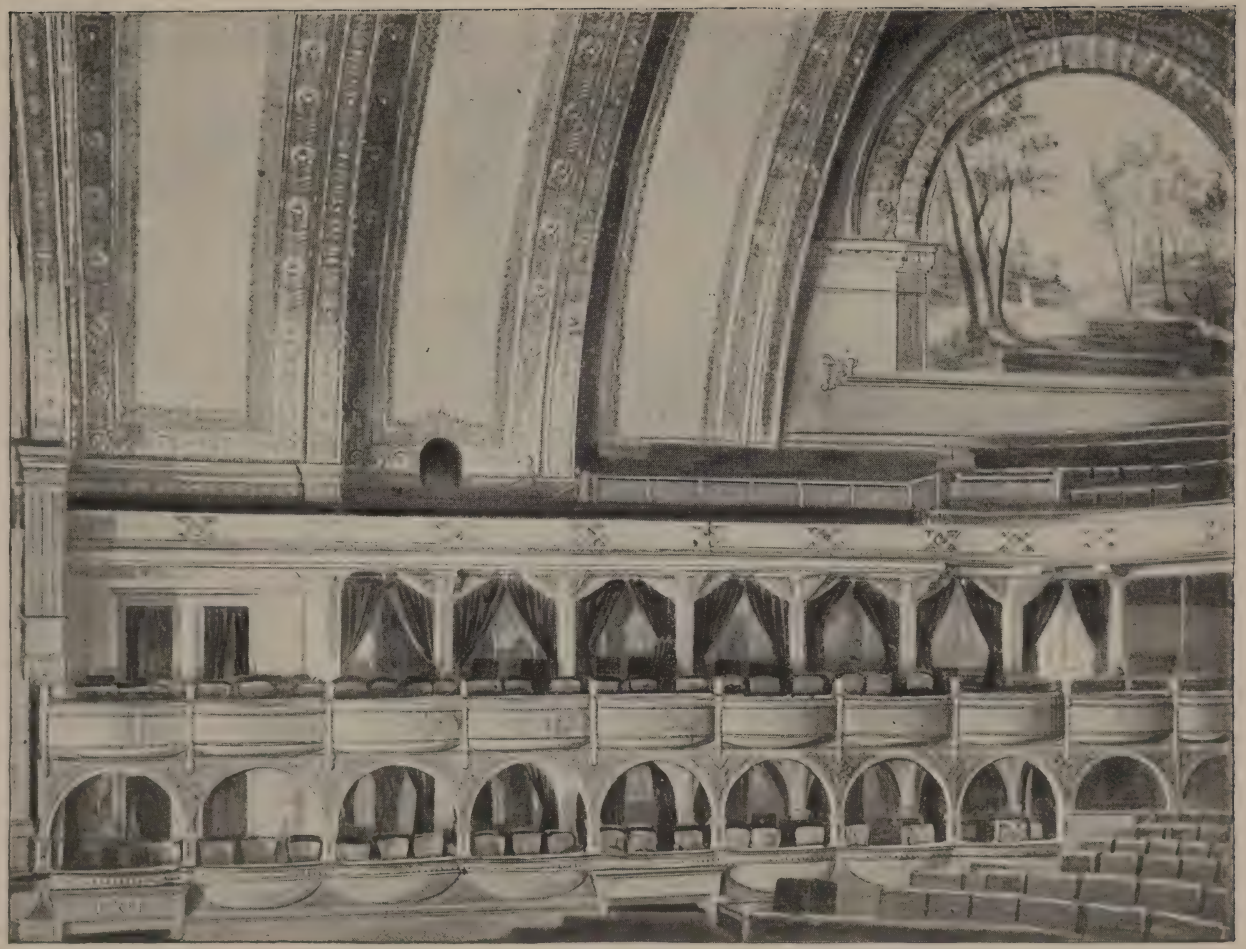
It will be seen from the foregoing that the Auditorium contains (including the boxes) 4,200 seats. Among the various uses to which the house is applied are many which do not require so great a seating capacity. Arrangements for reducing the size of the house have therefore been made by providing over each of the two galleries a section of movable ceiling, hung on hinges at one side and on chains passing over winches at the other. When the entire house is open, these sections of the gallery ceilings are turned upward on their hinges until raised so as to fold into panels provided for the purpose in the ceiling decoration. When it is desired to shut out either gallery from the house, these sections of their respective ceilings are lowered and turned downward on their hinges until the lower edges come down to the gallery railings, which are especially prepared for their reception. The lowered portions of the ceiling then form part of the general ceiling treatment of the hall, and the galleries are entirely shut off without impairment of the general architecture or decorative effect. If still further reduction of seating capacity is required, it is effected by a system of vertical curtains between the pillars on the line of the middle of the main balcony, by which means a further reduction in seating capacity of about 700 seats can be effected, so that when reduced to its smallest dimensions the house will contain but 2,500 seats. On the other hand, increased seating capacity for



DINING ROOM—AUDITORIUM HOTEL.
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conventions, etc., is obtained by continuing the stepping of the parquette seats into the main foyer, by forming two floors of seating upon the stage, by reseating the boxes and the box corridors, etc., until a total capacity of 7,000 seats is reached. Throughout this article capacity refers to numbered seats, and is independent of standing room, etc.

The dimensions of the stage are 70x 110 feet. The height from the floor to the rigging loft is 95 feet. The stage floor is divided into sections, all of which are separately or jointly movable in the vertical plane. This movement is effected by twenty hydraulic jacks, the plungers of which range from 6 to 24 inches in diameter and which are operated under a pressure of 100 pounds per square inch. The valves controling these jacks are concentrated in such a manner that the person operating them is always in communication with and under the control of the stage manager. The possible downward movement from the stage floor varies for different parts of the stage from 8 feet 6 inches to 18 feet 6 inches, and the range of movement above stage level is for parts of the stage as much as 18 feet. It is possible with this apparatus to create variations and gradations of level of stage floor almost instantaneously in any direction, up or down or oblique, for any part of the stage floor. Simulations of steps, terraces, rocks, hills, caves, pits, can be produced by the mere movement of a few levers. So also can wavelike or rocking motions of greater or smaller portions of the stage floor be effected in open scene. This hydraulic apparatus is modeled upon that patented by the "Asphalia," of Vienna, and applied by it in the opera houses of Buda-Pesth, Prague and Halle. The ingenuity of American builders of hydraulic elevators and the special conditions prevailing in this building have, however, caused the in-



VIEW OF BOXES—AUDITORIUM.

(See page 423)



VIEW OF BOXES—AUDITORIUM.

(See page 423.)

troduction of many improvements and modifications of the European apparatus.

It has been stated that parts of the stage have a downward movement of 18 feet 6 inches. This brings the floor of the cellar under the stage to a general depth of 6 feet below high water of Lake Michigan, or to 4 feet below the average level of the surface of the lake. Four pits, of an area of about 150 square feet each, extend still 30 inches deeper for the purpose of receiving the framework of the lowered platforms. As the stage is only about one thousand feet distant from Lake Michigan and the intervening soil is a mixture of clay, sand and water, the influx of this water had to be guarded against. This was accomplished by excavating under the entire area of the stage to a depth of averaging 3 feet below that of the finished floor. A sump had first been dug to a somewhat greater depth and the excavation kept free from water by the action of a steam pump. A thin bed of concrete was first spread over the entire surface. This was covered with a layer of Trinidad asphalt one inch thick. Over this were laid four sheets of heavy felt paper, each well saturated with asphaltum. These were again covered with an inch of asphalt. Then another five layers of felt and another inch of asphalt. At all the edges abutting against the inclosing walls the asphalt and the felt are carried up to high-water level. To resist the upward pressure due to a possible head of over 8 feet of water the asphalt was covered with Portland cement concrete and steel rails of aggregate weight somewhat in excess of that represented by the aggregate water pressure over the entire area of the excavated space and of sufficient transverse strength to take care of the irregularities of strain caused by the varying depths of the different parts of the cellar. Where the asphalt and felt are turned up at the inclosing walls they are held in place by special retaining walls calculated with reference to the hydraulic head to be resisted. The area so treated is nearly 8,000 square feet. The treatment has been entirely successful. There have been two leaks, one caused by the breakage of a pipe, brought about by the settlement of a wall, the other caused by the melting of asphalt next an inclosing wall, due to the proximity of the furnace of one of the steam boilers. Both leaks were stopped without difficulty and before any damage had been done by the inflowing water.



THE DETAIL OF BOXES—AUDITORIUM.

The hydraulic jacks which furnish the motive power for the movements of the stage floor extend from 12 to 24 feet below the cellar floor, and from 7

to 19 feet below the foundations of the surrounding walls. The shafts containing these hydraulic jacks were cut through a soft and treacherous soil, some almost adjacent to foundations loaded full up to the extreme bearing capacity of the soil. The shafts were polygonal in plan, lined with 8x8 inch timbers cut to fit accurately at the angles and inserted from below, around the excavation as rapidly as the same progressed, and carefully wedged in, layer after layer. Whenever necessary a steam-pump was used to free them from water. After the shafts were completed the foot of each was filled with concrete, the cast-iron cylinders were set, and after being fixed in proper position in both the vertical and horizontal planes, the spaces between the cylinders and the shaft walls were filled with sand. With the exception of a movement sympathetic with that of the foundations of adjacent walls, the shafts and cylinders are in the position and condition in which they were originally set. The movement due to the compression of soil under wall foundations was to a great extent anticipated, and arrangements for compensation for the same, by wedges and screws, were part of the design. Of the two floors below the stage, so much as is not required for the movable parts of the stage floor and the mechanism connected therewith, is utilized for dressing-rooms, store-rooms, workshops, etc., the entire construction being of incombustible material, except only the floor of the stage proper, and of the intermediate stage and traps, all of which is made of 3-inch plank. On this stage there are no "sky borders," and in fact no "borders" or "flies" of any kind. The entire stage is surrounded by the "horizon," which is a panoramic representation of the sky in every gradation from clear to extreme cloudiness. These gradations are painted on an endless canvas, so mounted and attached to a special mechanism, that changes of sky effects can be made in open scene, either gradually or quickly as the action of the play demands. All scenic effects are produced by drops extending across the entire stage, perforated where necessary, and so treated as regards perspective effect as to produce all the illusions of closed stage setting.

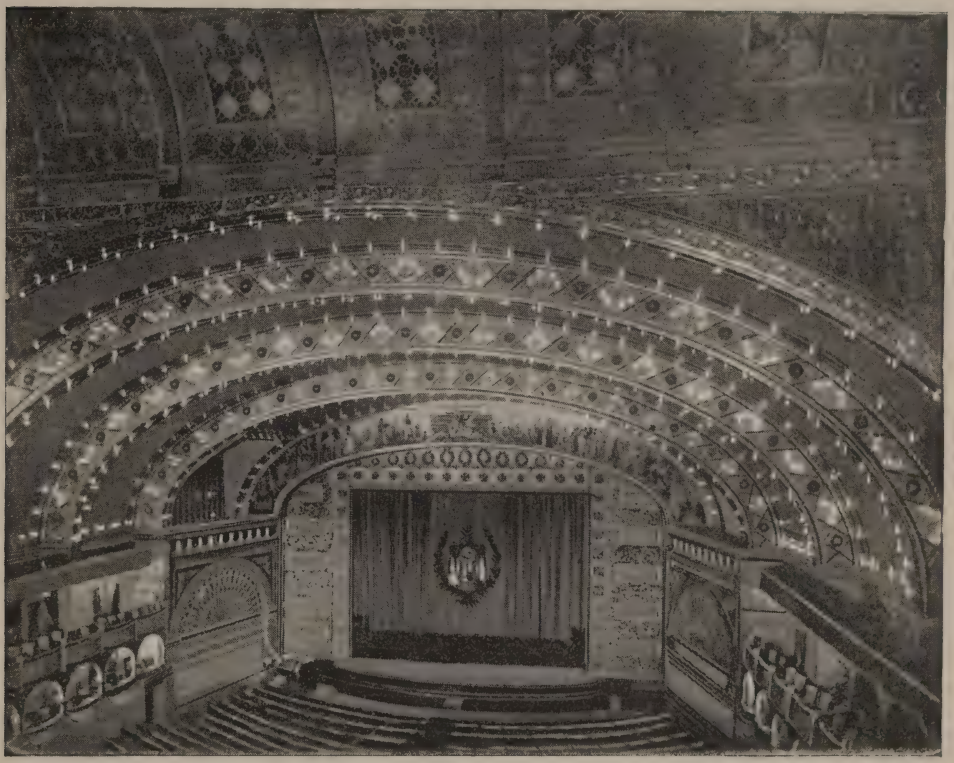
All of these drops as well as the border lights are counterbalanced so that they can be raised or lowered from the stage floor, and not from the fly galleries. The fly galleries are utilized as stations for light effects and for storage of scenery. Fly galleries, as well as rigging loft, are built entirely of iron, the floors being made of iron strips 3-16x2 inches, placed one inch apart and riveted to the floor-beams. All suspension ropes for drops, etc., are of steel, and all sheaves are of cast-iron. Even the battens to which the drops are fastened are made of iron, the only combustible used in connection with stage construction and mechanism being the cables, by means of which the counterweights of the drops and the drops themselves are raised and lowered.

As the curtain-opening which is required for scenic representation upon the stage is but 47 feet, while for choral concerts, conventions, balls, etc., a much greater opening is desirable, there has been provided to meet this exigency, what has been called "the reducing curtain." This is an iron framework 75 feet wide and 40 feet high, covered with plastering on wire cloth richly ornamented on the side facing the audience. Within this reducing curtain there is an opening 47 feet wide and 35 feet high. The smaller opening within the reducing curtain is closed by an iron curtain of ordinary make, and within this is the regular drop curtain of silk embroidered with gold thread. The reducing curtain weighs 10½ tons and the small iron curtain weighs 5 tons. For raising and lowering each of the three curtains there is a separate hydraulic apparatus, also for the horizon and for the paint bridge. The valves regulating all of these are on the stage within easy control of the stage manager. On both sides of the stage, to a height of four stories above and two stories below the same, are dressing-rooms, and the space between the ceiling of the auditorium and its roof is utilized for storage of scenery, properties, etc., the iron trusses being protected from fire by coverings of porous terra cotta.

Turning now to the consideration of the artistic development of the interior of the Auditorium proper we find that the color scheme of the decoration is extremely simple. The prevailing tone is ivory—gold leaf has been liberally used in connection with the same. The plastic decoration is either shaded as old ivory or incrusted with gold.

Over the proscenium arch is a painting in the nature of a processional, the figures being life size upon a background of gold. Upon the walls inclosed by a framework of architectural forms are two large paintings. All three of these paintings are illustrations of passages in Mr. Sullivan's essay on "Inspiration," read before the Western Association of Architects some years ago. The entire color effect is at once rich, quiet and delicate. It is carried through lobbies, foyers, retiring-rooms, etc., and is repeated in the Recital Hall—a small concert hall seating 500 people, placed above the auditorium.

The architectural and decorative forms found in the auditorium are unconventional in the extreme and are determined to a great extent by the acoustic effects to be attained. Hence the house is low—lowest at the stage end, thence flaring outward and upward to the extreme width and height of the room. The surfaces of the walls and ceilings are well broken. A series of concentric elliptic arches effect the lateral and vertical expansion from the proscenium opening to the body of the house. The soffits and faces of these elliptic surfaces are ornamented in relief, the incandescent electric lamps and the air inlet openings of the ventilating system forming an essential and effective part of the decoration.



VIEW OF STAGE—AUDITORIUM.



VIEW FROM STAGE—AUDITORIUM.

The elliptic curves of the balcony are complementary to those of the ceiling. As the ceiling finally resolves itself into rectilinear forms these are taken up, and, when the galleries are shut off, continued by the fronts of the two galleries. The fronts of galleries and balcony have a plastic treatment accentuated by groups of incandescent lamps which continue the effect of the ceiling illumination and decoration. The organ occupies on one side of the house the space ordinary given up to proscenium boxes. The organ pipes are concealed by two grilles and a colonnade. The arrangement and treatment seem quite spontaneous and do not betray the fact that up to the time when the walls had been carried 30 feet high and the architecture and decoration of the interior drawn, it had only been intended to have a small stage organ concealed somewhere in the "flies." Still, not only has the organ been made to play an important part in the architecture of the house, but room has been found for its 7,000 pipes, and its bellows, also for its complicated electric mechanisms, for the carillons, drums, echo organ, etc., the chimes in one of the fly galleries, the echo organ between ceiling and roof at the farthest end of the house.

Much attention has been paid to the heating, cooling and ventilating apparatus. Fresh air, taken from the top of the building, is forced into the house by a fan having a wheel 10 feet in diameter and 4 feet 6 inches in face. The fresh air comes down through a shaft in which it is subjected to the action of a heavy spray. This, at all seasons of the year, washes from the air much of the dust and soot with which it is charged. In winter, warm brine is used to prevent the shower from freezing. In summer from twelve to twenty tons of ice are used for cooling the shower and with it the air. Salt is mixed with the melting ice to still further lower the temperature. For warming the air in winter it is carried through steam coils so subdivided and provided with valves that very minute gradations of temperature can be affected. A system of ducts carries the air into the different parts of the auditorium, to the stage and to the various corridors, foyers and dressing-rooms. The general movement of air is from the stage outward and from the ceiling downward. The air is removed from the house by the operation of three disk fans, two of 8 feet diameter and one 6 feet in diameter. Ducts are carried to these exhaust fans from openings in the risers of all the steppings for the seats throughout the house, and from registers in every foyer, corrider, cloakroom, dressing-room, toilet-room, etc.

Besides this main ventilating apparatus there are ten smaller fans used for the ventilation of the engine rooms, stores, kitchens, laundries, banquet hall, bath-rooms, water-closets, etc. Especially noteworthy is an exhaust fan, connected by means of suitable ducts with every one of the four hundred rooms containing plumbing fixtures in the hotel.

But a description of the machinery plant in ever so sketchy a manner would far exceed the possible limits of any magazine article. A mere enumeration of the parts of the same will convey an idea of the difficulties encountered by its designers. There are in use eleven boilers, capable of evaporating 54,000 pounds of water per hour, the equivalent of 1,800-horse power. There are fourteen steam engines, aggregating 1,200-horse power capacity. Of these, three serve for driving fans and laundry machinery while eleven are used for generating electric current, there being the same number of dynamos, which furnish current for over one thousand lamps and for fifteen electric motors of which eleven are used for driving fans, two for the organ, the other in connection with kitchen mechanisms. There are in the building ten passenger and four freight elevators; all hydraulic power for the same being generated by four compound duplex pumps. For pumping drinking water there are six pumps; for boiler-feed and for raising water of condensation, seven pumps; and for the air-washing apparatus, one pump, a total of eighteen pumps of various sizes. There are also seven hydraulic motors for driving such mechanisms as ice-

crushers, knife-cleaners, etc. The entire apparatus is divided into two separate and distinct plants, one for the hotel only and the other for the auditorium and the business building combined. The heating apparatus of both plants is so arranged and connected that the exhaust steam is fully utilized. This is so effectively done that in cold weather steam is rarely seen escaping from the exhaust pipes, all being utilized and condensed in the heating coils and radiators. Circulation through the miles of pipes is maintained with a back pressure upon the cylinders, never yet exceeding three pounds per square inch, and in the early days of the apparatus, before the gradients of the pipes had been disturbed by settlements of the building, with a back pressure of less than one pound per square inch. An object of interest is the switch-board on the stage of the auditorium, which controls and regulates 4,000 lamps. This is set behind the reducing curtain and is hung on hinges in such manner that when the reducing curtain is down and the house is used as an opera house or theatre, the switch-board is to the right of the curtain opening, as in all theatres. When the stage is to be widened, the switch-board is turned outward 90 degrees so as to leave clear the entire opening of 75 feet, produded by raising the reducing curtain.

But there has been enough discursive statement of details of arrangement, construction and appointment, and it remains only to attempt to summarize briefly the results achieved.

Regarding business building, hotel and external treatment enough has already been said. There remain the Auditorium proper in its relations to its various purposes and the structural and the financial problems and their solutions.

Before disposing of the Auditorium proper, attention must again be called to the reducing curtain and its functions. For operatic and dramatic performances, for lectures and for concerts not involving the use of a mass chorus the reducing curtain is down and the house is simply a mammoth theatre or opera house with a proscenium or curtain opening of 47 feet. When, however, the house is used for a concert by a great chorus, for a political convention, a ball or a fair, the reducing curtain is raised and the entire stage becomes part of the auditorium. The chorus seats rise tier upon tier 75 feet wide, 70 feet deep, closed in on the sides with suitable decorations and covered with a series of sounding boards suspended from the rigging loft. If used for a ball the entire parquette, orchestra and stage are floored over and the stage inclosed by a continuous set scene in panoramic form, apparently a continuation of the arcade formed by the lower boxes, the arches filled with tropical foliage and flowers, in the centre of which is the orchestra. The arrangement for conventions has already been referred to.

The success of the room is greatest when used as a hall for mass concerts. The chorus seems thus to blend with the audience, and the house is so open that one can see at a glance almost the entire audience and the whole chorus. The sight of thousands of men and women in festive array is always pleasing, and when every one of these has ample space for sitting in comfort, has fresh air and can see and be seen and hear every modulation of sound in its full effect the result is inspiring. But little less effective and successful is the Auditorium as an opera house.

The stage settings are generally complete and sumptuous, the effect of the music as perfectly transmitted to the farthest corners of the house as the most critical can wish. It should here also be stated that the value of the stage appointments and mechanisms asserts itself at every performance. With stage hands one-third in number of those required for similar work in the Metropolitan Opera House all changes and transformations are made quickly and smoothly and there has never yet been a case when the actors have waited for the stage. On the contrary, the stage is always set before the actors or singers have made their changes of costume, etc.

All of this is, of course, also of value for dramatic performances, of which there has been a number of successful ones in the house, the two galleries be-

ing shut off. While the actors were easily heard and understood in every part of the house, objection was made by many to the fact that distance from the stage made observation of play of features too difficult for full enjoyment of the performance. As a hall for orchestral concerts or for virtuosi on individual instruments the hall has proved all that would be wished for, as also for use as a lecture hall. Its effect as a ball-room is almost that of fairy land, and as a convention hall it permits every spectator to see and hear all that is being said and done upon the platform, and would in this particular also seem to have fulfilled its purpose were it not for the demand in the case of National Nominating Conventions for a greater seating capacity.

The many peculiarities of the hall in acoustic properties, brilliancy of illumination, purity of atmosphere, conveniences of ingress and egress, comfort of seats, number, size and elegance of foyer, promenades, etc., and the many coat-rooms, retiring and toilet-rooms, etc., distributed throughout all parts of the house, all these assert themselves in each of the many uses for which the Auditorium has been built, and leave no doubt of its unqualified success and show that it fulfills the expectations of its founders.

As to the success of the building considered as a piece of architectural engineering, the verdict while in the main favorable, must be qualified by the regret that the preparations for resisting the strains caused by the growth of the building into larger proportions and heavier weights than at first contemplated had not been confined to the superstructure, but had been begun with the foundations. But as this could not have been expected under the conditions prevailing, the visible effects of certain irregularities of settlement of foundations must be considered as the price paid for many admirable features in the completed building, which had been deemed financially unattainable when the foundations were designed and built.

The problems in steam, mechanical and hydraulic, engineering have been successfully solved. The only difficulties encountered in the practical operation of the plant were remedied without great labor or expense. It may interest many to know that the source of complaint was the noise produced by the rush of large columns of water under great head through the supply pipes of the Tower Elevator. This was remedied by substituting a compression tank for the gravity tank as a source of water supply for these elevators. Another was the difficulty of maintaining the water column in the long suction pipes of the elevator, the service of which was from the nature of the case very irregular. In the case of one set of pumps a special contrivance for "priming" was provided, in the case of the other the tank was raised above the level of the pump valves. Minor difficulties in regulating air supply from and to fans were remedied by readjustment of dampers, valves, etc.

In quite a number of instances the folly of a municipal regulation prescribing vent pipes for traps was demonstrated. Owing to the great height of the building the friction of the air in these vent pipes became so great that they failed to do their intended duty. "Sanitas" and other anti-siphoning traps were substituted for the S traps, and the inoperative trap vents were disconnected, since which there has been no further trouble.

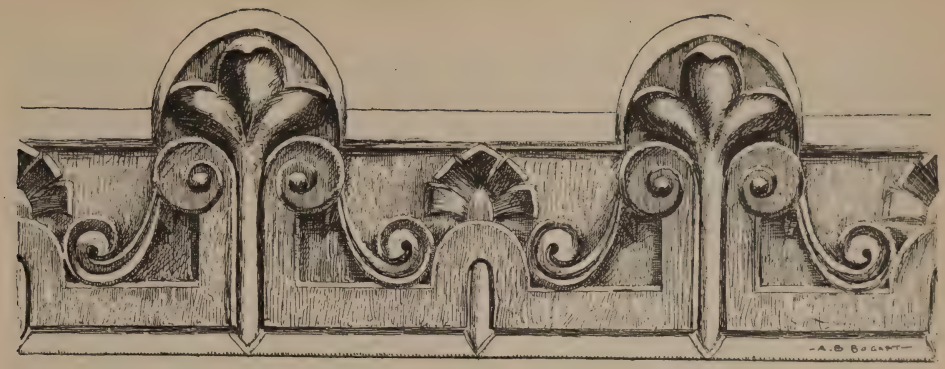
The two electric light and power plants, each at the time of its construction the largest in the world, were really an evolution brought about by a series of experimental efforts which after many vexatious failures finally produced an efficient and easily controlled apparatus.

Whether or not the enterprise is an unqualified financial success can hardly be definitely stated. So much, however, is certain: Chicago has an Auditorium far better as an opera house or a concert hall or a ball-room than either the Metropolitan Opera House or the Music Hall of New York, and the certainty that its owners will not be assessed to assure its maintenance is already established beyond the possibility of doubt. That a dividend will be realized upon the investment is more than probable. Time is,

however, required for a southward movement of the business centre of Chicago sufficient to fill all the stores and offices with tenants at rentals approximating those paid in similar premises a few blocks north of the Auditorium. Even now there is a small surplus revenue, which, however, is being applied to the payment of a floating debt incurred by reason of the failure of the management to dispose of a part of its capital stock which is still held in the treasury.

Dankmar Adler.





A MODERN CATHEDRAL.

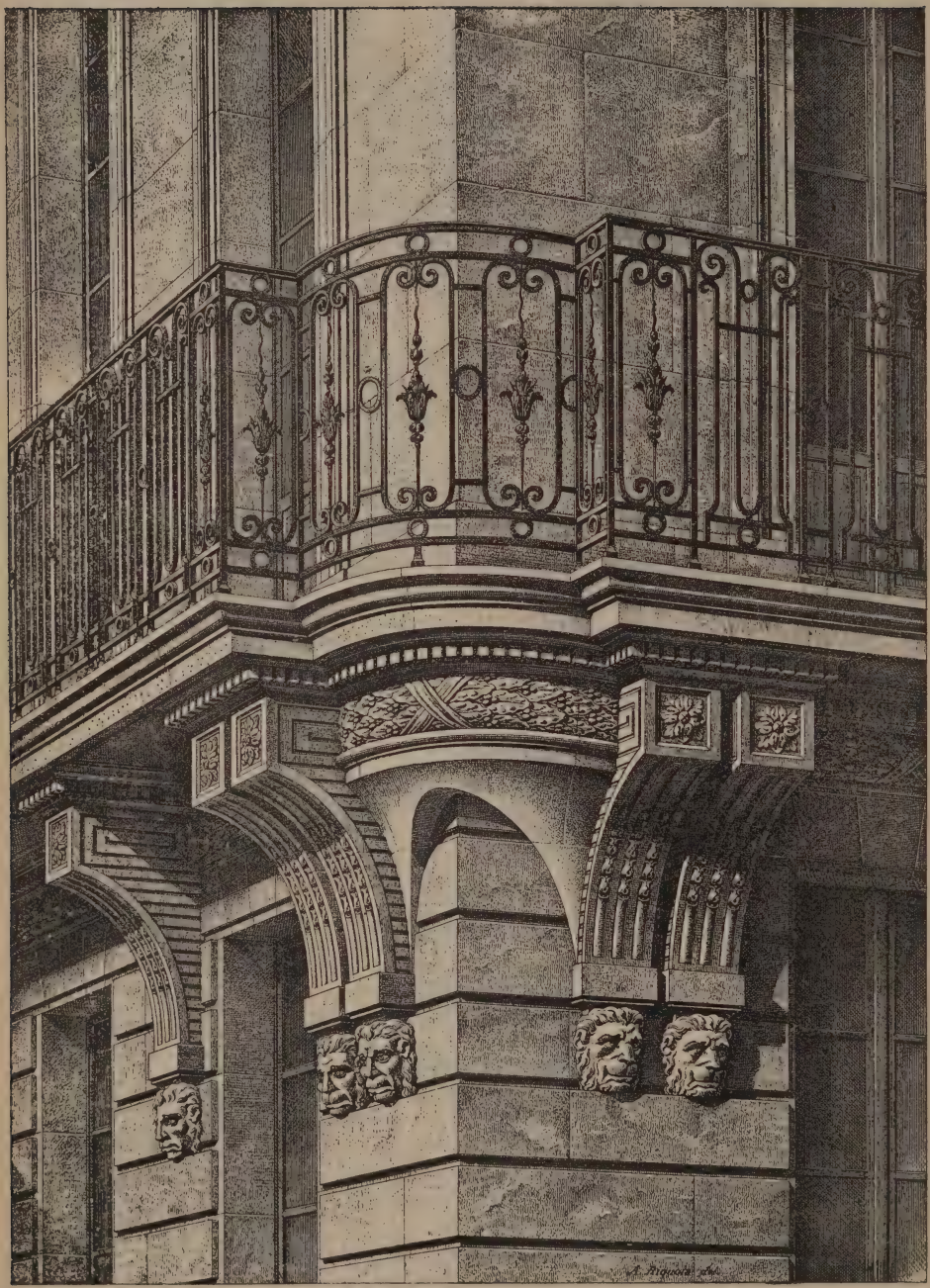
[SECOND PAPER.]



IT is probably no exaggeration to say that of all modern efforts in architecture, more than one-half are æsthetically disappointments and failures. Religious architecture is not exempt from this accusation; on the contrary, the higher ideal imposed by the purpose of the building and the absence of the element of material success, as distinct from artistic, which commercial buildings often enjoy, makes failure less tolerable in a church than in a business structure. Hence arises a feeling of trepidation in approaching the task we are considering, not only on the part of the artists engaged upon the work, but even before that stage is reached, on the part of those who feel instinctively that they are really chiefly responsible; that is to say, the committee or others who select and limit and control the artists. This timidity is, unfortunately, most likely to bring about the fulfillment of its own prophesies. Lack of confidence adds to the difficulties, already many. And the over-elaborated effort to surpass excellence, too often puts itself into the prominent place belonging to sincerity of purpose.

Fortunate is the project which has a chief champion inspired by this sincerity of purpose. Who has not realized the value in great undertakings of a simple sturdy adherence to the original motive and idea? Who has not experienced the destructive effect of the thousand and one questions and propositions which rise to obstruct and conceal the great object, and which divert all attention and energy from its simplicity and sincerity into a variety of devious ways where they are lost? The man who can resist these tendencies becomes a leader. Such a leader is the first necessity for the success of a modern cathedral.

It would be a startling list which showed how many of the grand works of mankind had been achieved by the inspiration and labor of single individuals. Of all the monuments received as witnesses to the faith and reverence, to the art, or science, as the case may be, of nations, cities, races, how many were due in their beginnings to the efforts of men with single motives. The unanimous and spontaneous action in such matters which we are apt to ascribe to the past is true in only a few instances; in many others its appearance is due only to our far-removed and careless view. When we burrow into the vaults and muniment rooms, and pore over the quaintly-worded records and get ourselves down to the details in which all projects, great or little, have birth, we find much the same dependence upon a champion a hundred years ago, or a thousand, as among us to-day.



Bordeaux, France. BALCONY.

In one place we find a grateful warrior expresses in an architectural gift to the Christian Church his thanks for victory. In another, a prelate, by devoted, persistent zeal, founds and builds an abbey in the face of, not only opposition, but persecution. And again, a king, just recovered from sickness, or converted from barbarism, gives his enthusiasm form in votive offerings in architecture. And in engineering and civil works, as well as in religious, individual action is found to be often the origin or fountain of the idea. From this we see that those are in error who argue in our own times that the lack of support for such propositions is a sign of their lessening usefulness. There is now less frequent and violent opposition, and there is more ardent and better support to the efforts of individuals for religious architecture than in any past age. A modern cathedral enlists a host of supporters, with an amount of sympathy and (what is more to the point) wealth, fully equal to what came in a like period of time to ancient foundations.

Next to the devoted champion, a modern cathedral stands in need of a skillful architect. It is not expected that this essay will make much impression on the adamant prejudices as to the best mode of selecting an architect. It is safe to say that the usual modern method of competition decided by inexpert committees is as bad as any could possibly be, and that decisions reached with the help of expert advice can be but little better until great improvement is made in the manner of instructing competitors.

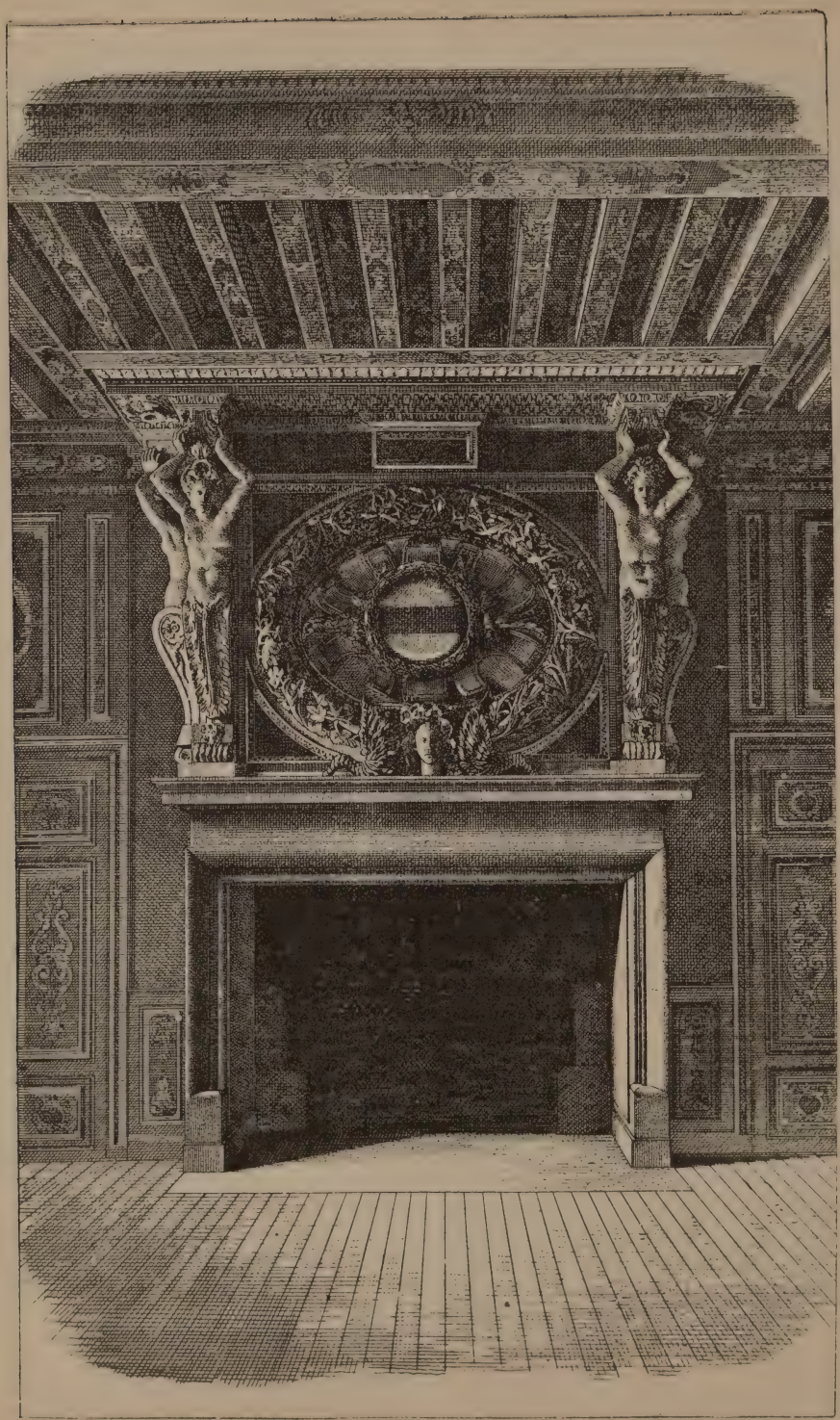
In order to obtain the best attainable design, as well as to insure fair contests (if contests are to be), there must be a programme in which are determined certain elements, and these, because of their importance, cannot be properly done by an ordinary committee.

In a recent competition, for example, only two matters were regulated, namely, length and aspect ; and the unwisdom of these peremptory directions is shown in the fact that in the finally accepted design both are disregarded. On the other hand, the questions which could have been determined first, such as general type and style, were left to the guesswork of each competitor, so that opinions or prejudices in these matters, which are always strong, were unknown quantities. Yet many a good design was work utterly wasted because of this lack of programme. It was a race where the runners were not notified of the course until the end, and where but few ran in the required direction. This is not the way to secure excellence. To be successful, a design for a cathedral cannot properly begin in an architect's drawing office. It should commence in the minds of those who desire it, and must start in vigorous growth like a young tree. Then the architect may take it in hand, as would a gardener, and train and prune and develop it.

How gratifying it would be to the whole world of religion and art if the first part of the story of a great cathedral might be told in some such form as this :

"The Bishop of the new Diocese of —— has accomplished the most weighty part of the task to which he is devoted; namely, the building of a cathedral, and his method is interesting.

"He obtained the earliest subscriptions for the express and separate purpose of securing a design for the cathedral. Then, with a fair sum of money available, he persuaded his chapter to engage the assistance of several architects of eminence in joint committee upon the preliminary questions of purposes, size, type and style of the cathedral, and a programme for a competition of architects. Many things were unanimously settled, many were discussed at length, and during a long interval between the two meetings much was done to ascertain public opinion on certain points. The fullest publicity helped every step taken. The final programme was not adopted until it had been provisionally published throughout the diocese, and all suggestions had been considered. When complete, it was full, explicit, wise and instructive, not only to the persons interested, but to churchmen generally. It was declared binding upon committees and competitors and trustees alike, and subscriptions for the purpose of carrying it out



Chatellerault, France. FIREPLACE, HOTEL SULLY.

were opened. It invited twelve experienced architects at a compensation sufficient to pay their expenses, to prepare designs, and made numerous suggestions of a preliminary nature. It invited all who were willing, to join in the competition without compensation. It excluded the consulting architects from the competition, but retained their services in their previous capacity at a stipulated fee for each meeting attended, and made them a part of the Building Committee. It defined the conditions and compensation to the author of the chosen design, and considered the question of superintendence. In due course, the selecting of a design was done in the same manner as the making of the programme had been. It was publicly done and publicly approved."

Let us now consider a little these preliminary questions, purposes, size, type and style.

In a general way the first named was treated in a previous article.* Its details will vary much in different localities. But we may summarise them as follows:

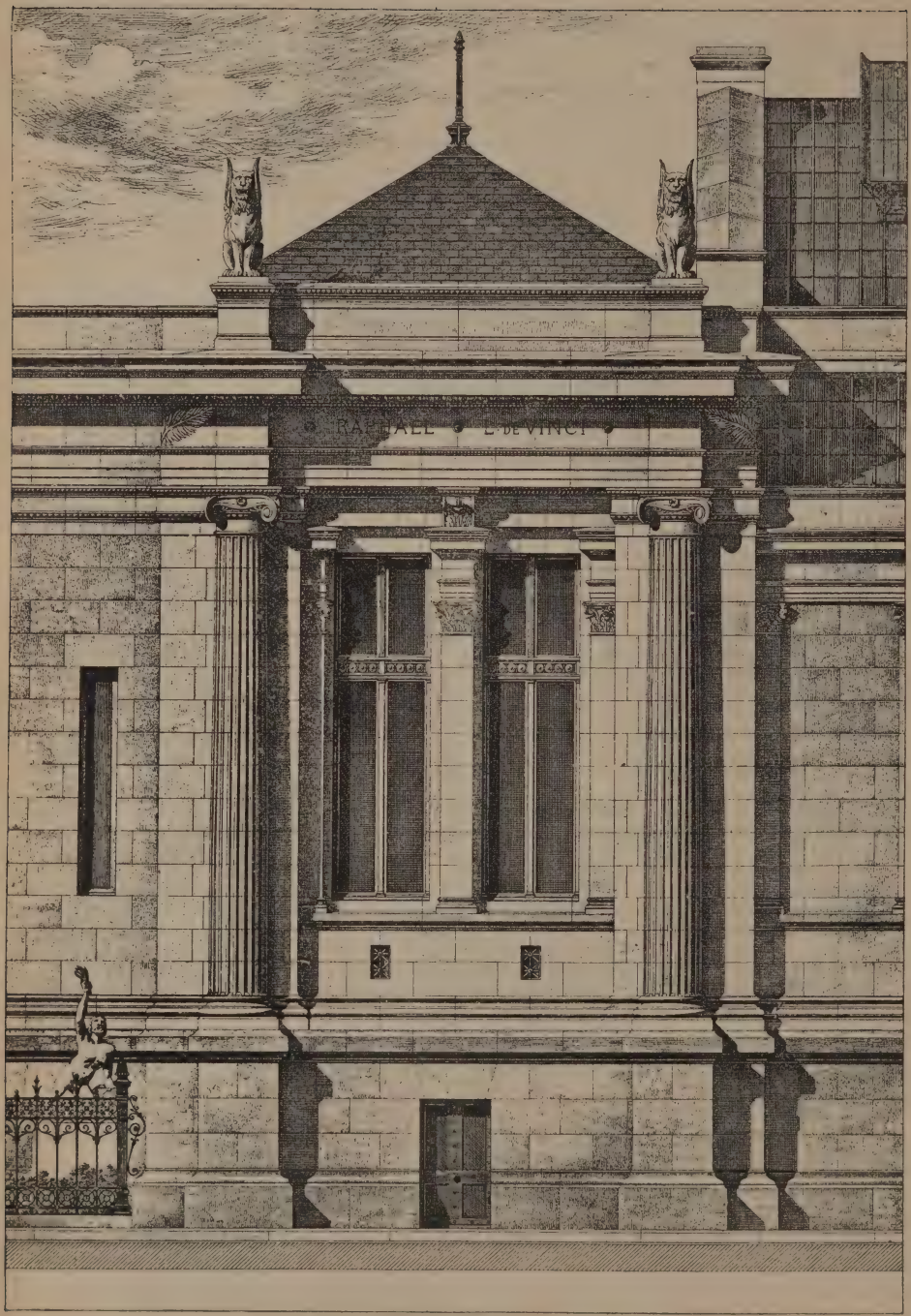
First, Worship and Communion. Second, Clerical gatherings and services of Prayer and Praise. Third, Services with preaching to the people. Fourth, Meetings of the organizations of the Cathedral. Fifth, Grand functions and ceremonials of the Cathedral or of the State. Sixth, Numerous minor services and ceremonies. Seventh, Public monuments of great men and private memorials. Eighth, Means of access and communication; and, Ninth, Expression of public invitation. These purposes will suggest the following requirements:

First, A Sanctuary with altar. Second, A choir with seats not only for singers, but for all the clergy of the diocese, or such of them as are likely to present themselves at important functions. Third, An auditorium for as many people as can be reached by the voice of a preacher. Fourth, The necessary chapter house, meeting rooms, vestries and sacristies. Fifth, A great amount of space surrounding and extending and amplifying the auditorium so as to give impressive architectural effects and to be available for great crowds of people who will be present at grand ceremonies, although they could not hear a preacher. Sixth, Appropriate chapels for minor services and ceremonies. Seventh, Appropriate chapels and aisles for monuments of sculpture and stained glass and other memorials. (The sixth and seventh requirements will, of course, form a part of the fifth.) Eighth, Vestibules, entrances and porches of ample size and of such beauty that they may also be part of the monumental architecture. Ninth, External features, such as open porches and cloisters, not only useful but expressive of invitation and welcome.

In former days, and until very recently, it has been usual to include another great requirement, namely, place or places for the reception of the remains of the illustrious dead, and often, in fact, for the dead not illustrious. But progress in knowledge of the laws of health will prevent this in our time and for the future, unless, indeed, the Church should modify its attitude toward incineration, and so make it possible again to shelter the ashes of its notables within its actual walls. But even this would probably cause only a modification in the design of monuments and the places for their reception, so that it need not change our list of requirements. There may, however, be several additional requirements in any given locality, such, for example, as special chapels for scholastic or military or other organizations, and residences for the cathedral staff.

The next question is of size. This, it is evident, can only be partially determined in generalizations. The cathedral must, to deserve the name, be at least large enough for a congregation of 2,000 persons in addition to the clergy and choir, and to this size must be added something for dignity of architectural effect and for the other requirements before examined. The demands of the diocese, and of the locality, and their financial abilities are more important factors in this part of the problem than

* See No. 3, Vol. I.



Laval, France. MUSEUM, L. Ridel, Architect.



Fortingall, Perthshire.

POLICEMAN'S COTTAGE.

The late J. Maclaren, Architect.

any theories. Nevertheless, it will be safe to again urge liberal and even ambitious planning. A portion of a noble building will have better chance to survive than the completed whole of an ordinary one. It is consoling to remember, when forced to economy, that small size still gives great possibilities. The little old twelfth-century Cathedral of Salamanca, in Spain, still stands impressive and admired, although it is literally overshadowed by the later giant of the fifteenth century. No more instructive lesson in size can be found than these two buildings. The old one, with less than 12,000 feet of floor space, surpasses in impressiveness the new, with about 52,000.

And now we come to the question of type. It is the greatest question of all. Yet, so illogically is the problem usually presented, that this is likely to be left to haphazard settlement, or even to mere accident, or sacrificed to some detail of comparatively small import. Let us agree at the outset that there may properly arise in the same age and in the same country more than one type of cathedral. That need not prevent us from seeking to define what, in general terms, are for our own day the best standard types. By type is meant a general form of structure pervading a number of examples. In ancient edifices (not strictly limiting ourselves to cathedrals, since other buildings may afford us useful precedent) we may easily distinguish such types as the Basilican, a rectangular hall being the first element, the domical, having a circular hall, with or without surrounding chambers, the long nave or long cruciform with extensive perspectives, the columnated with columns numerous and equal spaced, and numerous developments and combinations of these.

Type and style are intimately associated, so much so that frequently the latter is allowed to decide the former by including it. But to do this is to reverse the proper order of things. Style arises from and follows type, which should be therefore first determined.

Whence do types arise? In what do they consist?

The most primitive conception of an interior (it is with the interior we have first to do) and the earliest practice deserving to be called architecture would probably consist of four walls inclosing a square, and a flat roof. The first efforts at proportion would be likely to be bestowed upon the height, making it, we may assume, about five-eighths of the width. The next step would extend the length greater in one direction as compared with the other, and a chamber with a width and height about five-eighths of its length may be fairly taken as the simplest expression of internal proportion which can possess character and harmony together. We have here in the added length discovered proportion; a further additional length reveals character. After this character is fully developed in definite fashion, according as one or other dimension is allowed to dominate, it may be said that the *slightly* elongated chamber is negative as regards character, since our position within a hall modifies its total appearance. The emphasis of length begets all the nave types of proportion. From the emphasis of width (approximately returning to the square) arise all the octagon and circular and other spacious types. The emphasis of height (little used for interiors) creates the tower-like types. Broadly all the interiors of the world may be classified under either the first or second of these classes, and their artistic success is very nearly in proportion to their purity of character and type, or, in other words, to their singleness of motive shown in the emphasis of either length or spaciousness (width). Take, as examples, Westminster Abbey for the one, and the Pantheon at Rome for the other. It is scarcely possible to imagine a more splendid development of the character expressed in length than the first affords; in the restraint put upon other dimensions there is as much art as in the generosity of the chief one. Is it not evident that this character, the keynote of style, depends not upon absolute, but upon relative things? Is it not evident that any attempt to add to the subordinated dimension must destroy the force of the chief one?

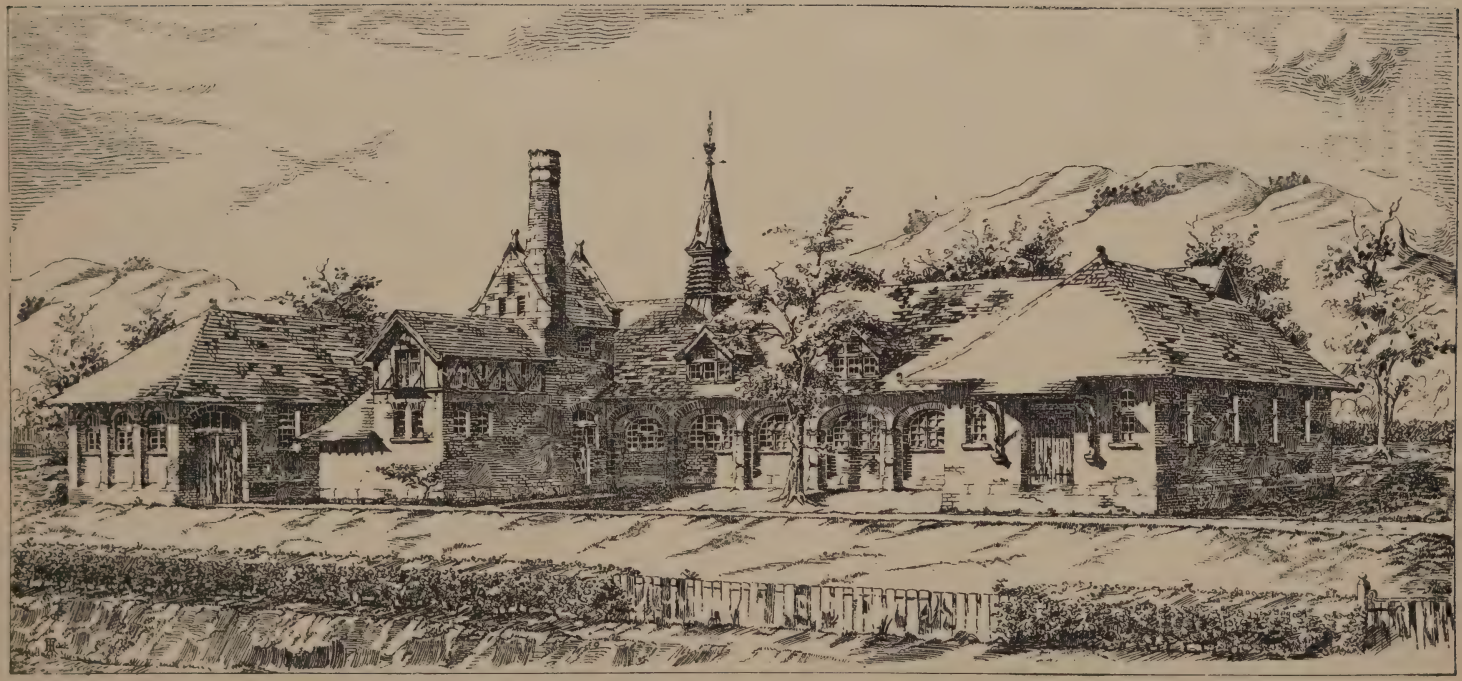
In the Panthenon we have a perfection of the expression of the space character, depending not only upon the actual existing harmonious things, but also upon the absence of unharmonious things. The length element cannot be introduced without lessening that dominant space idea upon which the great conception is based for character. All this argument may seem very abstract and general, yet it is necessary to a true view of the questions of type and style, and the lack of it has caused many a disaster. Since the close of the mediæval period there have been again and again essays to combine in one building these two characteristics, each one of which depends for value upon the absence of the other, and the inevitable failure has often been masked by great achievements in other qualities. Yet it is none the less true that some of the highest efforts in architecture of our era suffer in this primary qualification for excellence. Who, standing under the great dome of St. Peter's at Rome, has not marveled that such vast, such gigantic size, and such noble elements of design should be so slow of impression? Who, reading the twaddle, repeated sheep-like by dilletanti, that the failure to impress arose from perfection of proportions, has not felt that something was wrong in that argument? The true defect is the length element introduced by the great nave, which, superb in itself, almost annihilates the space value of the crossing and dome. Judging by the Pantheon's impressiveness, it is absolutely certain that a dome the size of St. Peter's could be made immeasurably more impressive if its character of spaciousness were emphasized by a proper subordination of the elements of length and height.

It is not to be inferred that we are limited to a simple square or circle in plan. Those variations, apses, recesses, etc., which are so subdued in the Pantheon, may be with advantage enlarged and cultivated to a high degree. There is no doubt that the extension of the floor by (for instance) a cruciform arrangement of nave and transepts, permits of much greater height in the central dome without loss of the space character. It seems to be chiefly essential that the extensions should be in all four directions, and nearly alike; but it is not necessary that absolute symmetry should prevail. As witness the superb Sta. Sophia at Constantinople, where the length is slightly emphasized without loss, but rather gain, to the grand spaciousness. This magnificent edifice is full of lessons in the possibilities of the domed type. It probably reaches the limit of permissible length in the perspectives and variety of treatment of its side arches. A little more and it would begin to lose in width.

Just as length may destroy width, so the converse holds good. When we look for an equivalent example of the length character destroyed by spaciousness, we again have to come to the Renaissance. St. Paul's Cathedral at London has a length of nave and of choir which, taken together, would be highly impressive. But they are divided by and for the dome, and separately each half has its length character so impaired as to lose its distinction, and the dome gains nothing, although in this instance it does not relatively lose so much. The architects of the middle ages knew better than to cut their perspectives apart in the middle. The crossing of the transepts in a Gothic cathedral does not do this. It is a sharp, narrow break like an instant pause in music, not a separation, but an emphasis.

No critic contemplating the nave of Rheims or Amiens or any of the typical Gothic cathedrals, could wish those satisfying perspectives broken up or amplified into rotundas or octagons?

The series of Western mediæval cathedrals undoubtedly developed the length character to its absolute and final extent. The number of buildings, the variety of styles, the length of time during which they prevailed, all help to demonstrate this. In such edifices as St. Severin, Toulouse, and Santiago di Compostella, Spain, is evidence that at a very early date (the eleventh century) almost the maximum length had been attained. And it is at least reassuring to see how in the centuries which succeeded the prevailing propor-



Malvern, England. SCHWEPPE & CO.'S FACTORY. Truefitt & Truefitt, Architects.

tions of length to width remained unchanged. It shows conclusively that the limits were well understood.

This series of experiments and conclusions ran through the period of the development of the Gothic style. During all this time there was almost no attempt at the adoption of the space type to grand purposes. Not that it was unknown. On the contrary, we find it most ably treated in many buildings. The octagon chapter houses at Westminister and York, and many others afford good evidence that it was well understood. And it is worthy of note, indeed it is remarkable, that there is no confusion of the two characteristics, such as the Renaissance perpetuated, and we have already examined. The Gothic architects felt, and one or two experiments helped them to feel, instinctively, yet definitely, the necessity of purity of character. Hence the abstinence from sensational combinations of spacious octagons with long perspective naves.

Of the experiments just referred to, a most interesting one was that made at Gerona, in Spain, in 1416. Here arose the question of how to complete a cathedral of which the choir had been built with apse and side aisles, all of the usual French type of the fourteenth century.

An enthusiast, a man of great ability, named Guillermo Boffiy, succeeding in persuading the authorities to allow him to build a nave of vast width (73 feet) which included on one span of vaulted roof the whole space intended by the original design to be covered by three—a nave as wide as the choir and both side aisles together. It was done; and it is hideous. Not in itself, but in its combination with the older choir and aisles. These, opening into its great straight end wall like caves in a cliff, are utterly ruined in effect. Their length is turned into depth, and, instead of charm, becomes a defect. It is evident that shallow apses would be more in harmony with the great wide nave than they are. As for the nave itself, it is a triumph of skill, and if accompanied by suitable features to complete a design of which it should be the central feature it might be a triumph of art. But now it is only *tour de force*. In the days when it was built it must have been talked of much. Architects traveled then and studied. We see in their works proofs of the closest affiliations and fullest community of thought in art. But Gerona Cathedral did not prove to be a new starting-point. On the contrary, it made no greater impress than the proven possibility of so great a vault. We can see that it was not considered a success. It violated the principle of purity of type, and its mixture of the space motive with the older length character was offensive.

Another experiment, a notable exception, is the Octagon at Ely, which Fergusson proudly describes as the only example of a true Gothic dome. However beautiful it may be in itself, it is even here evident that it is not an enhancement of the beauty of the whole cathedral. It is in fact the solitary example which should serve all ages as it did its own. It has often been asked why the plan here carried out has not been more general. The answer is not very hard to find. It is the same already given about Gerona.

For architecture in its highest phase the motive and character idea must be single and pure. We must choose therefore either length or spaciousness to be dominant in the design. If both elements must of necessity be introduced then one must be completely subordinated to the other.

Having advanced so far, the question of style will arise much less formidably. There is undoubtedly a very deep-founded and strong inclination in Christian communities of Western Europe and of America to have Gothic styles for religious buildings, and this is not merely accidental or transient; it is natural and lasting, because it is based on the mutual support which began in the infancy of both. What Gothic architecture is, the Christian Church has contributed to make it more than any other influence, and this is the only style of which such intimate relationship can be shown.

There are, however, two other styles very closely allied with the Christian Church in history and in adaptation.

These are, first, the Basilican, grand and impressive, the earliest developed from the negatively proportioned temple and its simple cell, the first stage of the advancement of length as a characteristic. In its cultivated examples, this style has much that commands admiration, especially when, by doubling its outer aisles, and enlarging apses and establishing transepts variety is added to its somewhat severe lines. Yet, even then, its single and similar columns became monotonous by such frequent repetition, and its derivation forbade much departure from details once set. But its chief disadvantage lies in the fact that in the Western Romanesque and Gothic, its length principle was carried so much further, and with such continued advancement from monotony to variety in detail, that usually the argument which would lead us to the Basilican styles would carry us beyond them.

The other is the Renaissance. This, after the erection of St. Peter's at Rome, was the successor of the exhausted Gothic in all Christian countries until the revival of the latter in recent times. The Renaissance is the natural and preferable style of the space type of cathedral, just as the Gothic is the true style of the length type. Yet it must be allowed that there is nothing in either style making it impossible to produce a perfect building even of the type to which it is less natural. It is fair to say that success is more probable in those cases where every contributory circumstance is in favor, and it is therefore wise to allow whichever type is selected to have the advantage of its own favoring style.

The word style has been used in the broadest sense. As to the period or phase of style, it would seem that, economical reasons apart, only the perfected phase can be considered; unless, indeed, there is sufficient ground for venturing to improve even that. There is general agreement that the Gothic and the Renaissance both reached points of highest perfection and then degenerated. During the vitality of art, style never went back, although its steps forward were so slow at times as to be imperceptible. If we take up any style at any time, for good reasons and understandingly, we must certainly allow those same reasons to lead us to their conclusions; that is to say, as far as they developed the style, without sacrifice of principle or purity. Arguments for Gothic style will lead us therefore to the fully developed period immediately before the decadence commenced. In Renaissance the same rule will apply, although it must be admitted that the order of progress is not strictly chronological.

There is one other halting place not so strongly defined, yet of great value. The Eastern Romanesque, or Byzantine style, which cultivated the space idea more than the Western, was arrested in its development rather than merged into a succeeding style. Its opposition to the length idea would recommend it in some cases. We may well, therefore, take up this style if we must have novelty, for there is in it some prospect of inventing good architecture unlike what has been done before. But it is a dangerous experiment. It is hard to do in a few months what has hitherto demanded centuries, and the style is an exotic. There is a great fund of suggestion in this Eastern Romanesque, even in that one before-mentioned example, Sta Sophia, but without doubt a safer mode of expression is the Renaissance, whose utterances are understood by the people.

Whether Gothic or Renaissance, the detailed arrangements of the plan and the composition from them of the interior design first, and the exterior afterwards, will be the work demanded of the architect in each separate instance. In such a discussion as this it is only permissible to sketch very briefly a few possible models.

First.—A circular central hall with minor chambers around it either as recesses, or connected as an aisle or aisles.

Second.—A square or octagonal or circular central hall in a group rectangularly disposed, forming a square or a short-armed cross. Each arm may be a domed or half-domed chamber, and may in turn have minor chambers or aisles around it.

Third.—A long nave crossed by long transepts, and extended by parallel aisles single or double.

Fourth.—A group as the last enriched by grouped chapels in an outer series.

Fifth.—A long nave crossed by long chief transepts, and also at other points by minor transepts, each of these enriched with aisles or chapels.

The first and second models are of the space-type; the third, fourth and fifth are of the length type.

In adapting the spacious plans of the domed styles, there is far greater invitation to new arrangements and more variety of suggestions for them than in the Gothic. Yet there is so much danger in untried experiments that this is quite as much a drawback as an advantage.

The Gothic plans depend almost immovably upon the Latin cross as a fundamental form. But this can be no objection. The accommodation of the large congregation at the intersection of a Latin cross is much the same as with a Greek cross, if the widths are the same. The width already attained by the naves of existing Gothic cathedrals is equal to the reception of a congregation so large that greater space would be useless for preaching purposes.

Therefore the question of type and style need not, in the case of a large cathedral, be anywise affected by the practical demands for an auditorium. It must be decided by the sympathies and opinions of the promoters of the edifice, and will be judged by the generations who follow them. The experience of the past fifty years would make it probable that the less a modern design departed from the precedents selected the greater would be its success. Yet we are almost justified in claiming, at least, an improving understanding of the art of architecture as distinct from archæology. The greatest misfortune of this day is the restless love of novelty in the masses, who, after all, deliver the verdict—Popularity. It is impossible to advance step by step as the Greeks did, and the Goths. And this is almost equivalent to saying that it is impossible to advance at all. This is why the admired product of one modern generation is scoffed at by the next. There is no doubt that the architecture which shall command the respect of ages to come must be founded in respect for ages past, departing from its models forward and not backward, and only so far forward as is positive gain and not simply novelty.

R. W. Gibson.



IRON CONSTRUCTION IN NEW YORK CITY.

PAST AND FUTURE.

THE writer being recently asked to give an expert opinion as to the best book on the details of modern iron construction, replied that improvements in iron construction were progressing at so rapid a pace that he could recommend no work, however recent, as being up to the latest standard. Improvements, however, have not progressed with the same strides since New York City began to build in earnest, but nearly all date from a very recent period.

In the days when the wealthy New Yorker's architectural ambitions were satisfied with a three-story brick front, trimmed with sills and lintels of white marble, and crowned with Grecian cornices of painted wood, iron construction proper was practically unknown ; it was not even in its infancy. Difficulties in construction were overcome with posts, beams, lintels and trusses of wood, and yet if we look back but half a century we almost touch that period. Since then what a change in our buildings, and what a difference in construction!

The modern successful New York City architect must be not alone an artist, but he must have marked abilities as a civil engineer ; he must outrank, if possible, the mechanical engineer in his knowledge of electricity, hydrostatics, heating and ventilation, and the sanitary engineer in the knowledge of plumbing, and withal be an accomplished financier ; then, too, it will not do for him to acquire merely a knowledge of these varied sciences, he must keep abreast of the constant improvements in them, and, above all, he must not copy slavishly what his confrères and rivals are doing, but must constantly invent something new.

This state of things is largely brought about by the rapidly developing and changing character of the Metropolis, and its unsuitable shape for rapid expansion. The island is so narrow, and its trade centre, the "Stock Exchange," so near one end, that the tendency of each trade not only to flock to one spot, but to crowd as near to this centre as possible, has made the price of land down-town simply enormous. There are many sales on record where the price was so great that if the property had been covered entirely with silver dollars two layers deep the owner would have scorned the offer. To place low buildings on such property would necessitate the charging of enormous rents to derive income on the ground value; but even if the paying of such rents had been feasible, more room had to be provided to accommodate those clamoring for it. As the old low-priced ground leases expired one by one, owners were called upon to build taller buildings, to give more room and to get more rent. But this was impracticable, for tenants would not mount stairs above four or at most five stories.



LANCASHIRE FIRE INSURANCE CO.'S BUILDING.

No. 25 Pine street, New York City. J. C. Cady & Co., Architects.



OLD GIRDERS.

It was here that the inventive genius of our race stepped in, and the "elevator" solved the problem.

Daring builders went as high as six, then seven, eight or nine stories, and the climax seemed reached. A few years and the lesson was learned that such buildings were a menace to the city. They could not be controlled in case of fire. Hence the law requiring them to be "fire-proof." This brought about the first great step in the improvement in iron construction. Wood in floors, trusses, stairs, elevator inclosures, in fact every constructive or exposed part had to be replaced by iron, not only to prevent decay and burning of the wood, but because the fire-proof construction in partitions and floors added so greatly to the weights to be borne. Soon, however, nine-storied buildings no longer sufficed; office rents which in the cheapest parts of a building brought at least $2 for each square foot of floor space, no longer made sufficient income. More room was needed and prices continued to rise, therefore buildings had to go higher; hydraulic and electric rapid-running "express" elevators, with a speed of 600 feet a minute or more, solved that part of the problem, and buildings could and did rise to thirteen and fourteen stories.

But here arose a new problem; the brick walls at the base became so enormously thick that their cost was very great, their weight excessive for the poor foundation in many parts of the island, and above all the valuable ground space occupied by them a great loss of income to the owner; so much so that, if a man had a narrow lot, little more than an entrance hall-way would be left between the side walls on the ground floor, and this too on his most valuable renting floor.

It became necessary, therefore, to make the walls thinner; and iron construction was resorted to, culminating in what are now called "skeleton" constructed buildings. To show how rapid is the progress in such matters, it is but necessary to state that the foundations of the first building of this kind, the Lancashire Insurance Company's building at 25 Pine street, in which all the walls are built with skeleton wrought iron construction, so that though the building is ten full stories high above the ground the brick side walls are only

12 inches thick at the ground level, were laid but little over two years ago, and yet it has already been adopted as the standard of construction for nearly all the new tall buildings, some of which are now rapidly rising towards their proposed seventeen stories.

Where this growth will stop no one can predict. Weight on the foundation may be the limit mark, but aluminium construction in the near future may even overcome that difficulty.

In thus briefly outlining the causes for our recent remarkably rapid progress in iron construction, the writer has hesitated before claiming as modern inventions even the elevator or the New York City "sky-scraper," for as archæologists rob modern civilization of all that makes life worth living, yielding the palm for luxury to Rome, for art and literature to Greece, for construction and enterprise to Egypt, so he may by such claims arouse a controversy as to whether or no the skeleton-constructed "sky-scraper" with its "express" elevators, is not after all but a feeble imitation of the Tower of Babel.

Iron construction in New York City can easily be divided into distinct stages: Infancy, Cast-iron Period, Cast-iron Fronts, Wrought-iron Beams, Riveted Girders and Trusses, Skeleton Construction.



OLD GIRDERS.

INFANCY.

In this period there is nothing of interest to the constructor beyond such interest as is aroused by curious and odd methods of construction discovered in old buildings as they are torn down. The most curious of these contains the incipient idea of the modern riveted girder. This idea of building up I-shaped wrought-iron girders can be found in many old buildings. Their construction is frequently so odd and unnatural that the wonder is not what could be made to stand up, but what failed to fall down. Probably the most curious is where two plates, placed parallel to each other horizontally, are bolted together, being separated by one or two vertical plates, there being no method whatever of attaching the vertical plate or web to its horizontal top and bottom plates or flanges, reliance being placed only on the pressure or squeezing effect due to the bolts.

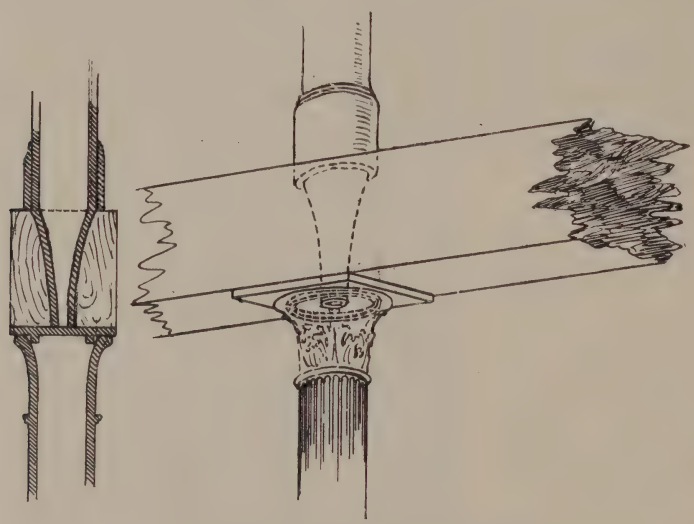
Illustrations of some curious old girders are given on pages 450 and 451. These were evidently removed by some second-hand dealer, and being only a

little too long for his new building, he did not care to stop nor to expend money to cut them off, but built them in as they were, a constant reminder to passers-by of olden times. Such improvised iron girders, and the few curiously-shaped European rolled iron sections, principally channels or deck beams, which found their way at rare intervals into New York buildings, increased spans sufficiently to make iron columns a necessity. These led to the

CAST-IRON PERIOD.

The columns were of cast-iron, usually fluted on the shaft, with bell-shaped tops or capitals. Later, the caps frequently were Corinthian in design.

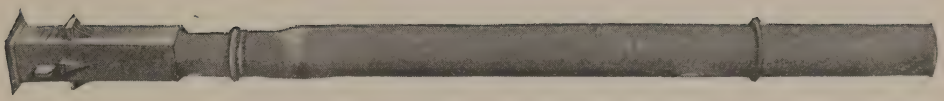
Where wooden girders rested on the columns, the lesson was soon learned that to run the girder over the column and place another column above the girder, meant serious trouble in the building, as the girder began to shrink and thus lowered each column above it. To avoid this the dowel was resorted to, a construction which, though intended to avoid a danger, frequently became of such a curious design itself as to endanger the building more than the danger it aimed to avoid. The dowel is a short column of diminished diameter, a hole being drilled through the girder for its passage. Thus the load on the column above is transferred to the columns below, for the depth of the girder, through unshrinkable iron. But to save expense frequently the dowel was cast on the upper column, assuming the shape shown in the sketch below. A thin cast-iron plate was laid over the bell-shaped cap and the bottom of the upper column reduced almost to a dull point rested in the centre of this thin plate, over the hollow of the cap below, ready to punch through the plate on the slightest provocation; an accident which has happened more than once. And yet this construction has been used as recently as within twenty years, and buildings with it stand and are still used with immunity for heavy storage and manufacturing purposes.*



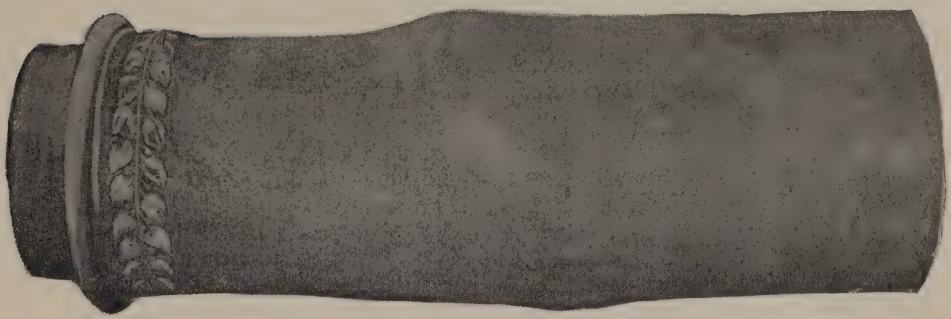
OLD-FASHIONED DEFECTIVE DOWELLED COLUMN.

From these old columns it is quite a

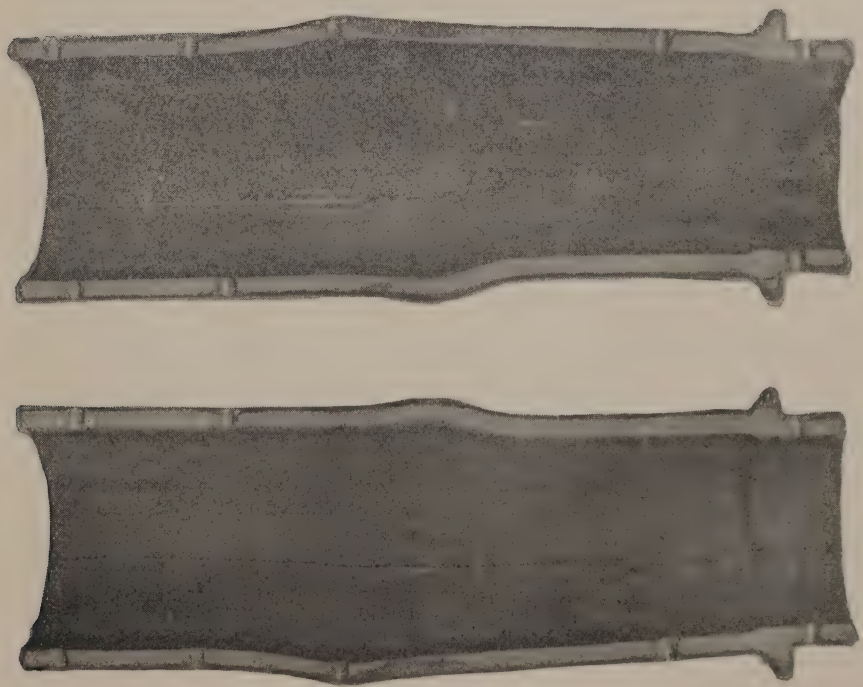
*The writer has purposely avoided the discussion of the long mooted question, whether cast or wrought iron columns are preferable in case of fire, and to resist rusting. The former are objected to on the theory that they crack and snap off suddenly when heated and suddenly cooled by water. The latter are supposed to bend and let the load down more gradually, but under less intense heat. As a rule both behave fairly well, though the writer inclines strongly to wrought iron; a fire that will destroy either material would probably destroy the masonry over it anyhow. A curious instance, however, was found in the great Western Union fire, where a cast-iron tower corner column actually partially melted, and settling on itself shortened its length, as shown in the illustration; and still the tower stood intact until torn down by hand. The objection to wrought iron on the score of rusting is perhaps more real, and yet it can be readily answered by the fact that we remove wrought iron anchors from old masonry walls unharmed by rust, though frequently more than 100 years old.



Cast column from Western Union Building, New York City.



Column taken from Western Union Building (New York City) after fire.



Sections of column from Western Union Telegraph Co.'s Building (Broadway, New York), showing action of fire.
Removed by Jackson Architectural Iron Works.



PHŒNIX COLUMN, ERECTED BY THE JACKSON ARCHITECTURAL IRON WORKS.

(See page 455.)



OLD-FASHIONED CAST-IRON LINTEL.

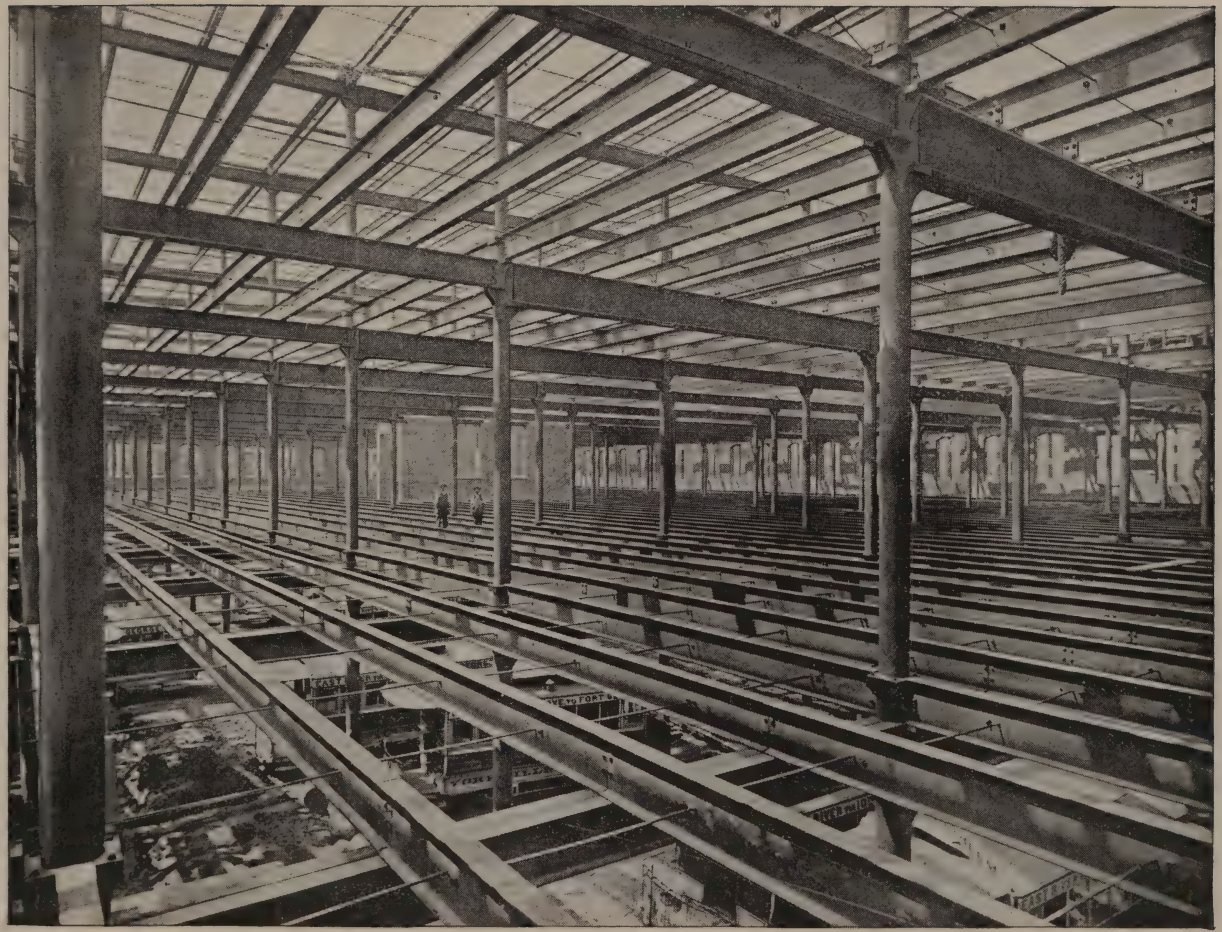
step to the modern wrought iron column, as seen in the foundations of the building at the corner of Broadway and Eighteenth street. (Illustration, p. 454.)

The use of cast-iron further introduced the iron lintel; then, as the daring of constructors increased, the span of opening was lengthened; and the methods of overcoming these new difficulties led to many curiously-shaped lintels, the best known being the "arched" lintel, a good example of which was seen on top of the rubbish caused by the collapse of the buildings after the fire at the corner of Fulton and Nassau streets. Constructors became so daring at last that the building law took cognizance of these constructions and was largely instrumental in fostering the use of that anomaly, the "bowed girder."

This consisted of an arched rib of cast-iron, with a straight tie rod of wrought iron, the rib being the "bow," the tie rod the "string." These girders, of a highly-ornamental kind, can be seen throughout the old Harper & Bros.' publishing house. The bowed girder was a great favorite, until quite a recent period, for lintels, and the writer can remember many a happy hour spent in his early experiences tracing out the various strains due to this mongrel combination of metals. The use of cast-iron finally led to

CAST-IRON FRONTS.

Of all periods and styles of architecture which New York City has experienced—and she has had them all from Egyptian to the latest fashionable crazes—the cast-iron fronts were the most abhorrent. It was found that the elaborate Renaissance fronts which were being built of stone and chiefly of marble, were very expensive, and instead of abandoning the style and doing something cheaper, cast-iron was used, modeled and painted in imitation of marble or stone, and thus these, to our predecessors beautiful—but to us hideous—designs could be carried out more cheaply than probably any kind of inexpensive style with genuine material. A. T. Stewart's retail store, Ninth street and Broadway, is about the acme of this period. When, however, designers let the cheapness of the material—cast-iron—run away with their good sense and allowed their fancy such play, when we saw great business structures rise in Broadway, with gilded Moorish fronts, the fashion was doomed, and cast-iron fronts were quickly aban-



New York City. THIRD AVENUE RAILROAD CAR STABLES. Albert Wagner, Architect.

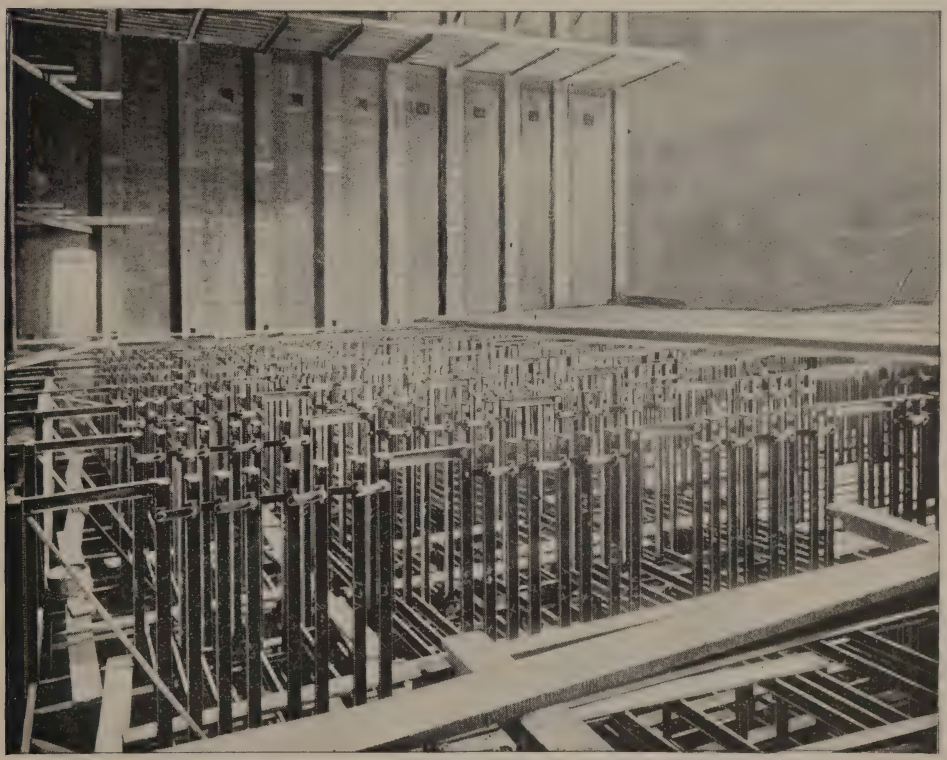
doned, to be chiefly replaced by brick and terra cotta ones.

The writer would not, however, wish to be understood that no front should be of iron; on the contrary, he contemplates building at an early opportunity a skeleton construction with an *iron front*, but the front should be made to express and show the nature of the construction, and of the material, and should not imitate the methods of using a more expensive material.

As already stated, rolled iron beams of European make were at intervals introduced into our buildings, and as the demand for them increased they were rolled in this country. But the protective tariff and the pool arrangement of the mills kept the price of structural shapes so high that rolled iron had to be used sparingly.

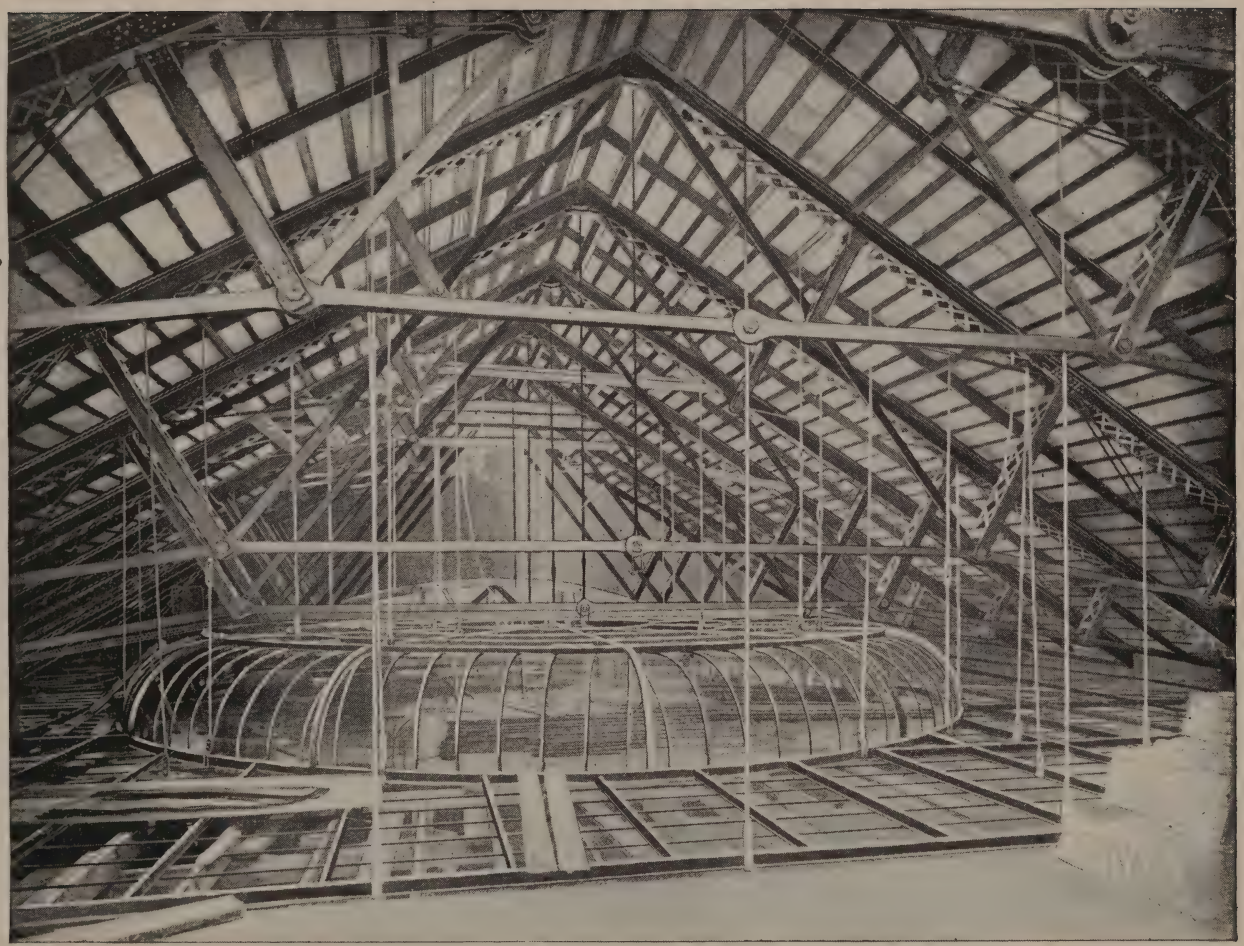
In a public building recently destroyed by fire and since rebuilt by the writer's firm, a curious mélange of iron and wooden beams was found, odd bedfellows used in the same floors. Though the old building was erected only about twenty-three years ago, either the price of iron was too great to use iron throughout for floor beams, so that it was used only here and there with an idea of stiffening the floors, or else the owner's desire to have iron beams used could not be carried out, because they could not be easily obtained in sufficient quantities.

Cooper Union was one of the early structures to have iron beams; but their adoption in such structures as the Post-office, the Western Union Building, and the *Tribune* Building, in the early "seventies," led rapidly to their more familiar use, as illustrated, for instance, in the Third Avenue car stables. (Page 456.)



STAGE SUPPORTS—METROPOLITAN OPERA HOUSE.

New York City. J. C. Cady & Co., Architects.



New York City. ROOF AND CEILING, METROPOLITAN OPERA HOUSE. J. C. Cady & Co., Architects.

In the Metropolitan Opera House, built in the early "eighties," the use of iron construction undoubtedly made a big stride. As this was the first theatre building probably in the world to introduce fan ventilation, furnishing to every seat a supply of fresh air, so it

RIVETED GIRDERS AND TRUSSES.

The span of the roofs and ceilings in this Opera House, considerably over 100 feet, gave an opportunity to show what could be done in light iron truss construction.



Riveted girder and hoisting engine, new wing, American Museum of Natural History.
New York City. J. C. Cady & Co., Architects

was also the first absolutely fire-proof theatre in the world. Not only was the ordinary iron construction used, but even the galleries were constructed of iron, though nearly every beam had to be bent to a different shape; the ceiling and stage galleries were iron; and, what at the time was claimed to be an impossibility, iron supports for the stage were invented, to be removable at will, and interchangeable. (Page 457.)

This building, too, was one of the earliest buildings into which the use of riveted girders of modern design entered. The span of these riveted girders was so great, that their weight was beyond anything that had been hoisted before them, and after they had broken down a successive series of derricks, special derricks had to be devised to get them into place. It should be said that this difficulty had been foreseen;



New York City. TRUSS OVER CARNEGIE MUSIC HALL. Wm. B. Tuthill, Architect.

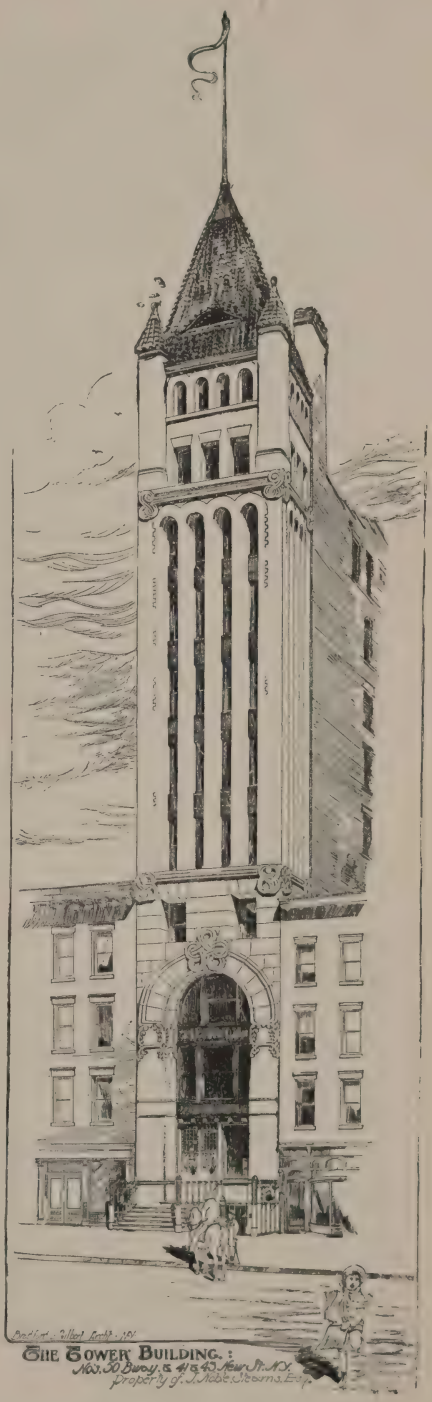
for what were originally designed to be "boxed" or two-web girders, were afterwards built in two halves longitudinally; that is, two single-web girders, of only about half weight each, were substituted, hoisted separately, and afterwards bolted together.

Since then the use of this form of construction has increased so rapidly that now, only a decade later, the claim of these girders to be unusual or very heavy would be ridiculed; and they would be hoisted into place in a few minutes by a steam engine, so small that, as a reporter once put it, "it looked as if the girder could 'yank' that little engine all over the place." This was said of some riveted girders used in the American Museum of Natural History some two years ago, which were some 65 feet long, 3 feet deep, and weighed about 35,000 pounds each.

They supported solid tiled masonry floors, for which no columns were used, the unobstructed exhibition space on each floor being about 65 feet by 110 feet. These girders were unparalleled but two years ago; since then they have been surpassed.

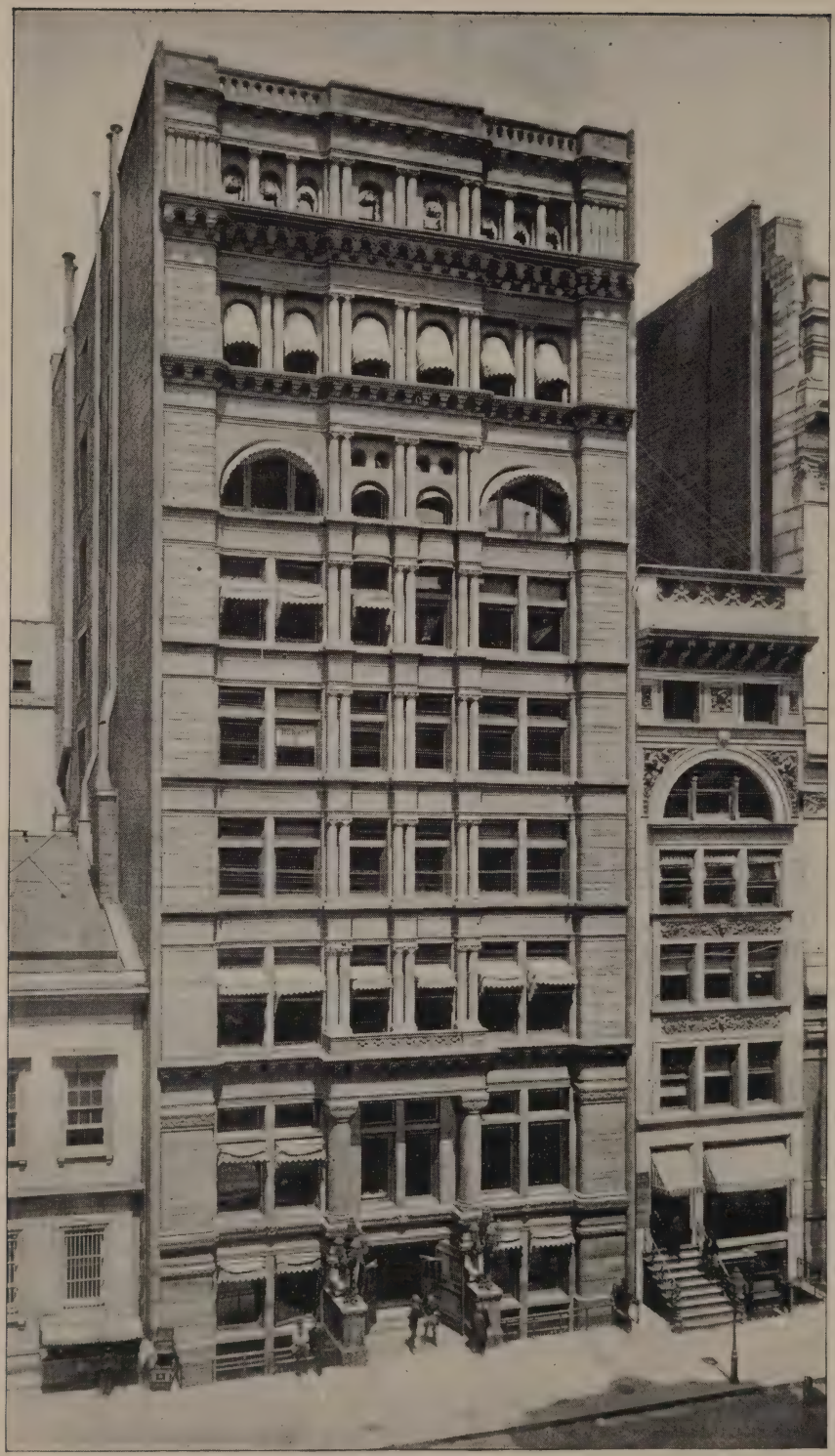
In building iron trusses architects copied from the designs of bridge constructors, using the "pin" jointed truss. Good examples are given in the illustrations, showing the great roof trusses over the Metropolitan Opera House; and one of those over the New Music Hall, the latter calculated to carry a load of 678,000 pounds, and weighing 51,000 pounds each. (Page 460.)

It was soon found, however, that for the shorter spans used in buildings, a great saving could be made by constructing the roof trusses largely of flat bars and angle irons; as these shapes, not being controlled by the mill pool, are much cheaper; and as the joints of the truss are riveted together, the cost of the "shop-work" is greatly diminished. This form has been largely used in the last five or six years.



SKELETON CONSTRUCTION.

As already mentioned, the necessity for economizing space on the lower floors led to skeleton constructions; while its rapid and almost sudden introduction was due to the innovation and successful use of wrought-iron columns and girders in the Lancashire Building, yet for a number of years



GALLATIN BANK BUILDING.

Wall street, New York City.

J. C. Cady & Co., Architects.

constructors had been struggling with the problem.

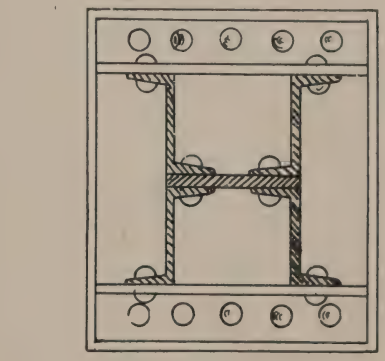
Attempts were made to build thinner walls by stiffening them with iron columns at intervals, a very bad construction, as the wall joints would shrink, while the columns remained unchanged; or, columns were introduced to remove the weight of floors from the walls, a not much better device.

Several buildings finally were built with cast-iron columns and cast-iron lintels or rolled beams between them at intervals, the Tower Building being probably the pioneer of this class. It was found, however, that such buildings, if narrow and tall, lacked rigidity, as columns of cast-iron can only be *bolted* together and to the horizontal lintels or beams, and the bolts have to be set by wrenches and by hand. This construction allowed more or less play at the joints, and such buildings, if very narrow, had to be stiffened laterally, that is, sideways, by means of vertical trusses running from side wall to side wall and from top to bottom. These form a very serious drawback in planning, as partitions have to be placed wherever the trusses are, and partitions are frequently not wanted there. The Columbia Building, just completed, uses the cast-iron column with greater success, as the base line of the building is quite broad in comparison with its height. The best-planned modern office building leaves each floor as one great loft, to be subdivided by light interchangeable and easily-moved partitions, to suit the tenants' wishes.

In the Gallatin Bank Building the effort was made to economize space by the use of iron-constructed walls. Both cast and wrought iron were used. The entire rear walls were only 12 inches thick, made of cast-iron columns, of ⊔ shape, the hollows being used to convey air to the offices. The two interior court crosswalls were built of wrought iron and are largely filled with glass, the solid parts being only 6 inches thick over all.

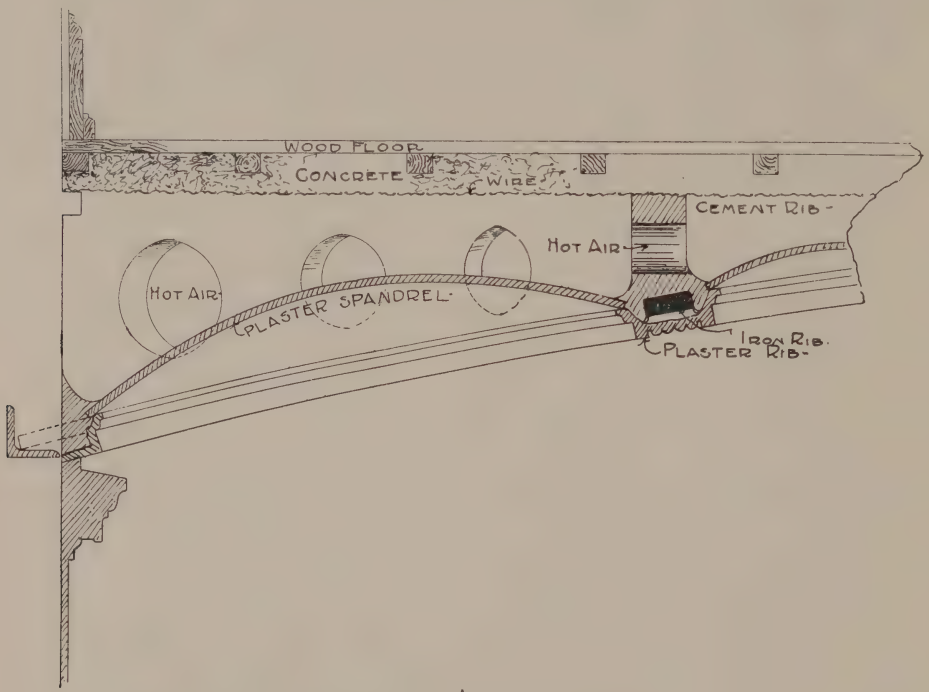
The wrought-iron construction proved so superior in its economy of space and rigidity, that when the Lancashire building was put up cast-iron was eliminated from any consideration whatever. What is known as the Zee-bar column was used, this being four Zee-shaped irons, riveted to a central plate, as shown below.

The Zee bars and plates, where jointed at different points of their height, had wrought-iron plates riveted to the lower column, the next columns above being *riv ted* to these plates; in this way the columns, as they grew in height, practically became of one solid, unbroken length. At intervals of from two to three stories, but always immediately at some floor level, horizontal, single-webbed riveted girders were *riveted* to the columns at their ends, and on these the 12-inch brick curtain walls rested; the cross girders carrying the floor beams proper were of course at right angles to the wall girders and were also *riveted* to the columns at their ends. The floor beams were *riveted* to the girders, and each floor which came



Plan and section, and elevation of Zee-bar column and shoe.

on a level with a wall girder was trussed throughout its entire surface by means of flat-iron diagonal cross bars *riveted* to beams and girders. Thus every such floor became a truss and gave the building rigidity laterally by transferring any tendency to twist or move laterally to the front and rear walls. The latter had riveted girders at *every* floor level *riveted* at their ends



SECTION OF N. POULSEN'S FLOOR CONSTRUCTION.

to the corner columns, and the corners above and below the girders, thus formed at the columns, were filled as far as the windows would permit with wrought-iron triangular "gusset-plates" *riveted* to columns and to the top and bottom flanges of the girders. It was thus made utterly impossible for the building, though only a little over 20 feet wide, to collapse.

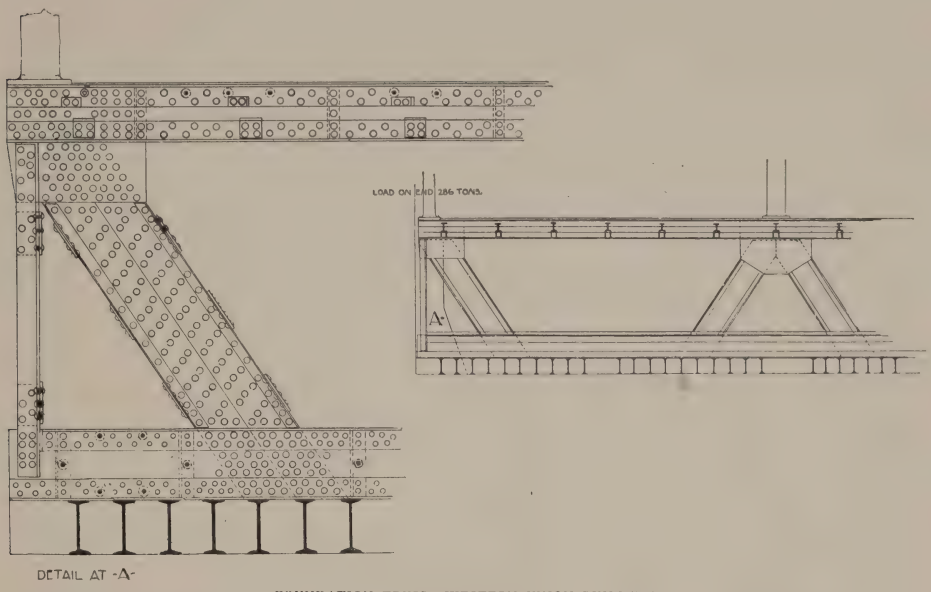
It will readily be seen how well the Zee bar column and riveted girder adapt themselves to be used in connection with a thin brick wall, as the bricks covering and protecting the columns and girders can readily be bonded with those forming the "curtain walls."

An improvement on the riveted girder, however, was introduced in the Mohawk Building,* where the webs of the girders are made up of diagonal flat bars, which readily allow the wall to be carried full thickness past the web, the inner and outer sections being easily bonded together, and the girder consequently much better protected from fire.

With the great weights of our modern buildings, iron and steel are rapidly coming into use to spread the weight at the footings. A curious and most ingenious foundation construction was used in the new Western Union Building.† It became necessary to transfer a large part of an enormous load, to be placed on the column at one corner of the lot, to more secure footings. To accomplish this an inverted truss was built into the foundation; its extreme end under the column in question. The vertical column under the column above, for the height of this truss, is so diminished in size that, should the full load attempt to settle

* R. H. Robertson, architect.
† Dey street, New York City.

on to it, it would be unable to bear it, and bending or giving away, ever so slightly, under the load, would at once transfer it to the truss. This lower column could have been omitted, but is counted on to help spread the load over the footings.



FOUNDATION TRUSS—WESTERN UNION BUILDING.

Dey street, New York City. Henry J. Hardenbergh, Architect.

THE FUTURE.

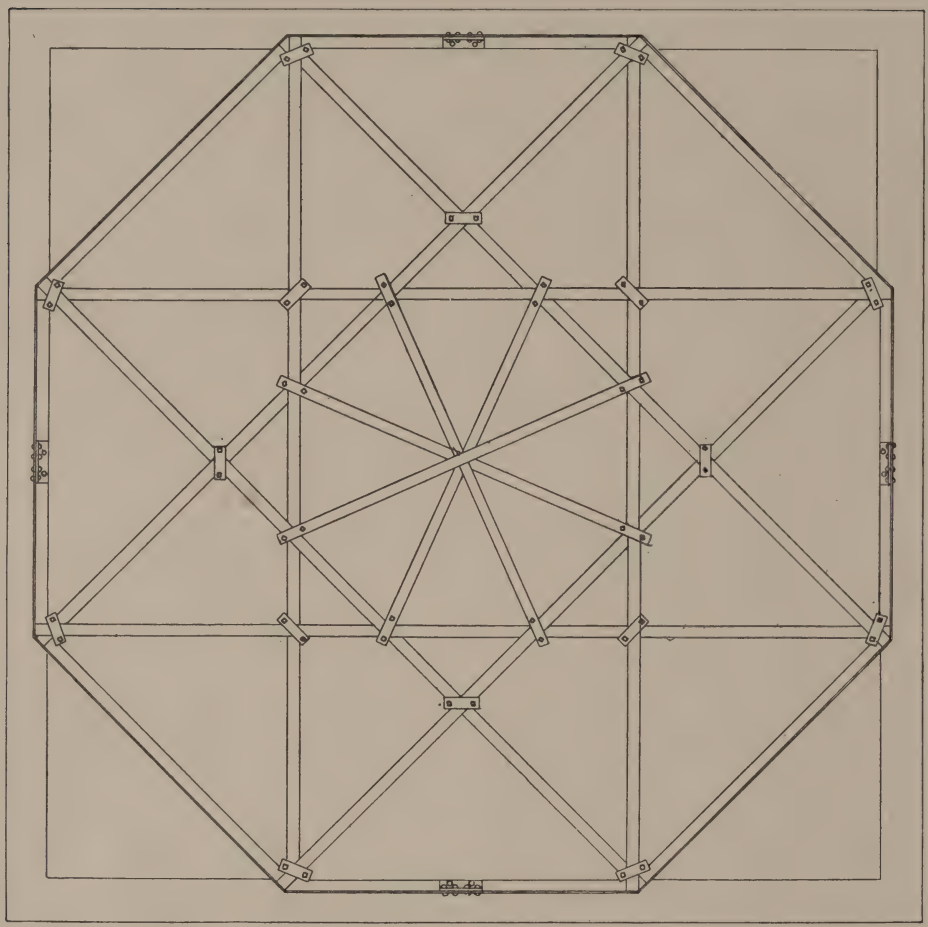
With so many ingenious constructors working at the problem of iron construction, as we have in New York, there is no doubt that the rapid strides of the past will be kept up, if not surpassed in the near future. Steel is the material which will probably lead the immediately impending advances.

Its manufacture is hardly as yet in that state of certainty where it can be used with perfect impunity and without tests, which latter mean increased expense. But it is rapidly assuming a commanding position in architectural construction, and is pushing out of use wrought iron, as the latter has displaced cast-iron.

The great trouble, however, at the present moment, is not so much the material used, as the slavish following of old constructive ideas. At first wooden girders, at larger intervals, supported wooden beams at closer intervals and at right angles to the girders; then iron girders supported wooden beams at right angles; then iron girders supported iron beams at right angles to them, and now we make steel do the same. Why! the old Egyptians, thousands of years before our era, put stone girders on stone columns, and at right angles to these the stone beams forming the roof coverings!

Can no one invent some new and better method? Does the "Cambered" arch offer no suggestion? The writer believes fully that before long some one will invent some much cheaper and less clumsy arrangement, for the material is now here that will adapt itself to almost any form.

A curiosity, and possibly a strong hint as to future constructive solutions, is afforded by Mr. N. Poulsen's new patent. Flat iron bars are placed across the entire span of the room, these ribs crossing each other at right angles and diagonally across their corners, the whole bent to the "natural arch curve" by rolling, and riveted together at all intersections. The spandrils between are filled by plaster arches made to a "natural curve" by being moulded over a



PLAN OF N. POULSEN'S FLOOR CONSTRUCTION.

rubber bag, inflated with gas. All curves being similar, all parts are interchangeable. The ribs are covered underneath with plain or ornamented plaster ribs, which are moulded to the curve, and cut off in lengths to suit. Above the ribs and at regular intervals between them, concrete partitions are built up to near the floor, these are covered with wire cloth, and a heavy layer of concrete over them forms the floor, ready for any finish. Holes through the ribs allow the hot air to enter under the floor at, say, one corner and to circulate all over, under its entire area, doing away with the objectionable "cold floor," and then the heat enters the room near the point of starting through a floor register.

Whatever may be said as to the artistic effect of this arrangement, or as to its practicability in modern buildings, it certainly has the merit of being a long step, whether forward or not—at least, a long step—far away from our present clumsy methods.

And after steel—our present hope—what next? The writer believes that cast-steel has within it immense constructional possibilities. When it can be made to be as strong, ductile and reliable as wrought steel, then the immense advantage of being able to do away with the expense of hand work, and to introduce the facile and cheaper form of casting will again supersede the present "wrought" age. When supports for stairs such as those in the



CAST-IRON STAIRS—NEW YORK LIFE INSURANCE CO.'S BUILDING.

Minneapolis, Minn. Babb, Cook & Willard, Architects.



CEILING UNDER N. POULSEN'S FLOOR CONSTRUCTION.

New York Life Insurance Company Building can be done in cast-iron, what may we not hope from the fully-developed and perfect cast-steel.

And after steel, what next? The development of the future will probably come with aluminium, a metal combining with strength, lightness. It is not affected by our trying climate, which requires all steel and wrought iron to be carefully and constantly protected from corrosion.

The writer's hope that this material may be accessible to constructors in the near future, is largely based on the already rapid reduction in its cost of production since it was first discovered and particularly since the impetus for cheapening its price was started by Napoleon III.

It can now be produced for twenty-five cents a pound, several tons being manufactured daily, for use in household and table goods, military equipments, cartridge shells, in connection with machinery and similar purposes.

When the price has been still further reduced, it will be largely used for covering roofs, for gutters and leaders, and sheet metal-work generally; and, as an alloy, if not in its pure state, it will some day assuredly replace the heavier and corrosive iron and steel constructions of the present day.

Louis De Coppet Berg.



HAVEMEYER BUILDING.

Church, Courtlandt and Dey streets, New York City. Geo. B. Post, Architect.

(From water-color drawing.)



RESIDENCE OF C. P. HUNTINGTON, ESQ.

Southeast corner Fifth avenue and 57th street, New York City. (From water-color drawing.) Geo. B. Post, Architect.

THE VICISSITUDES OF ARCHITECTURE.

THE student of Architectural Art History is overwhelmed with the number, magnitude and intrinsic merit of the monuments of the past and correspondingly despondent when he contemplates the efforts of our own time. The historic past, however, begins with Egyptian remains of foundations, built of dressed rectangular stone, of probable wooden superstructures which date back 6,000 years before Christ. The era of the Pyramids extends from 4,000 to 2,500 years B. C. The past, therefore, as far as concerns architectural monuments which have come down to us, is a matter of 6,000 to 8,000 years. It is not surprising that much good work has been done during that time; doubtless a vast amount of bad work which has been allowed to decay has also been done in the same time, for it must be remembered that monuments of art merit are not only preserved by their superior stability, but also by the fostering care of man. An illustration of this on a large scale may be found in the restoration and completion of the cathedrals of the thirteenth century in our own time.

Moreover, a review of the known monuments of the past will show that the dates of their creation are not equally distributed. They are efforts of special periods separated by centuries of sterility and inactivity.

Another broad view of the subject reveals the fact that the highest development of past architecture (Egyptian, Greek and Mediæval) is coincident with the culmination of great religious ideas. In harmony with these ideas, but subordinate to them, secular structures express social and political ideas of lesser import, perhaps, but of undoubted individuality and force. The priest and the soldier, the representatives of human ideas, are celebrated in architectural monuments. Their functions and those of the people in relation with them, form the acts of human groups, which expressed in a building become a monument of a social or religious idea. Without material acts of this description ideas cannot be conveyed to the people at large. In the past this was universally recognized as a fact. At the present time, since the invention of printing, it is unfortunately assumed that the discussion of an idea is sufficient to instruct the masses who are able to read. So it would be if they did read.

Architectural monuments, expressive of social, religious and patriotic ideas, are as necessary to-day as they were in the times of the Parthenon and the cathedrals. It would be unjust to the nineteenth century to say that these ideas are no longer foremost in men's minds—but it is true, that they lack the definite and positive form they assumed in the past. They are under discussion, and more mental energy is engaged in freeing them from the cobwebs of the past than in giving them positive and definite form. Besides, we are busy in improving the material conditions of mankind and are apt to look upon eth-



Milwaukee, Wis. PABST OFFICE BUILDING. S. S. Beman, Architect.



Philadelphia, Pa. BETZ BUILDING. U. Decker, Architect.

ical relations not so much as paramount in themselves, but as adjuncts to material well-being. The priest and the soldier no longer govern the world. They are relegated to the position of servants of the people, and the merchant, the manufacturer, the builder of railroads and ships are the representatives of material prosperity and have taken the place of kings, bishops and generals.

It is not the province of this paper to inquire whether this condition of things tends to the greatest good of the greatest number, but it may be questioned whether it is conducive to the development of great moral ideas, to their celebration by popular acts, and finally to the fostering of art in general and architecture in particular. Nor has it so far been the motive for the creation and the poetical development of ideas which may serve as a basis for architectural monuments, nor are architectural monuments possible in the absence of such positive ideas.

To illustrate: The majority of buildings which command the attention and services of the architect at the present time and in this country are strictly business buildings. Prominently among them are railroad stations, insurance and office buildings, stores and news offices. Considered from an architectural standpoint these buildings, by their simplicity and economic construction, should express a mere business purpose. Upon them, however, are lavished in costly material and decoration the forms of courts and palaces, in order to appeal to the attention of the community and to a remunerative patronage. Architecture is ransacked to deck these simple clowns of material use with the shields of the warrior, the crowns of kings and the forms of libraries and courts of law. The architect is practically retained to advertise a plain business purpose by clothing these structures with whatever ornate forms he may find handy in his repertoir of architectural monuments.

Of course, we build courts of justice and capitols; they, certainly, it will be said, represent vital social and political ideas. True, but these ideas by late definitions have been deprived of their poetry, hence they cannot be poetically expressed. A judge no longer performs the functions inherent in his office in the past, he has sunk down into a referee who decides upon the cogency of the arguments of contending lawyers, and by a fiction of modern law deputes the cognition of facts to a jury. Hence it is a fact that a court-room is nothing more than a convenient apartment for legal discussion, and a number of such compartments are habitually packed into a rectangular structure which can in no way be distinguished from surrounding business buildings.

The same applies to our State houses, or capitols as they are called. No one can possibly consider our legislative bodies and their surroundings from the standpoint of art as poetical expressions of an idea.

But then we are to have a cathedral.

Let us here express our unqualified reverence for the Ecclesiastical Institution which intends to celebrate its existence by erecting this architectural monument, also our admiration of the men engaged in the undertaking. Their intelligence, moral purity and broad charitable intent must be patent to all. The Episcopal Church has long ceased to content itself with protesting against dogmas, and has turned its attention to the moral and material well-being of its parishioner outside as well as inside of the church. A great work of instruction, material help and intellectual refinement of the people at large is being silently and effectively done, large sums of money and, what is more potent, a great amount of intelligent, personal labor are expended annually upon this work, and magnificent endowments for the same purpose are showered upon the church. A broad and liberal interpretation of charity has thus been added to the conventional formula of Christian faith, but has not as yet been incorporated in its outward manifestation. The positive religious idea of modern Christianity is a mere extract of that of the Catholic Church. Some reductions have been made, but nothing has been added excepting the tacit understanding that Catholic ritual is to be abandoned; and no new demonstrations have been substituted for it.



Bushey Heath, London, Eng. NEW CHANCEL, ST. PETER'S. Jas. Neale, Architect.

To-day, as of old, the cathedral is a place where the bishop meets the clergy and people of his diocese to speak to them, not by words but by the help of art, by pictures, music and processions, by the expression of the building itself of the great Christian idea he represents. Catholic methods of doing this are conventialized into forms which partake but little, not only of modern Christian ideas, but of modern methods of expression. It is not at all difficult to supersede these with more forcible and less conventional forms. This may be the work of time, but it need not to be a long time if the necessity of the work is but recognized and is pursued with zeal and energy. Nor need we to enter upon the probable detail of it; it is not the function of the architect to do this at any time, but we may state that with regard to the proposed cathedral no steps have as yet been taken to define modern Christianity other than by a general protest against the Christianity of the fourteenth century, and its forms of art expression. The church has not felt nor expressed the want of a fitting place where the bishop may meet his clergy and people, to address them on the essence of modern Christianity. What has been said, and it is the only reason which has been advanced for building a cathedral, is that New York has now arrived at a state of magnitude and affluence when the world expects that it should possess a cathedral. The only reason for building a cathedral in the City of New York, therefore, is that the great commercial metropolis should be provided with architectural bric-à-brac of this kind. What sort of a cathedral a Protestant cathedral is to be has not been determined any further than that it must of necessity be a Catholic cathedral in some way modified in order to express a protest. No solemn conclave of Protestant divines has convened to determine the positive idea which is the essence of modern Christianity, nor the ritual which will express this idea poetically. A Protestant cathedral, therefore, is as yet impossible.

Similar conditions of architectural sterility, the result of the same cause, may be observed in the art history of Egypt during ten or fifteen centuries before the Christian era; also at its beginning, in Greece, when the temples had ceased to interpret the religious ideas of the times and Christianity had not yet sufficiently crystallized to generate Christian monuments.

The prime vicissitude of architecture at the present time has been shown to be the want of definite ideas, which must always be the motive of a monument. The second may be formulated as follows: Given a well-defined idea, is the architect of the nineteenth century, by his education, prepared to develop it into a monument?

It is not much more than a quarter of a century ago that in this country no institution existed where architecture was taught in any form. We have now a reasonable number of polytechnic schools and universities where young men may receive an architectural training as good as that of the best foreign institutions of the kind.

In those days, the young aspirant to the profession served an apprenticeship in the office of a practicing architect and acquired a training by absorption in an architectural environment. Of these it is not intended to speak here; nor is the educated architect to be held personally responsible for his shortcomings in dealing with an idea. The question is: "Are the methods of the best obtainable architectural training of such a nature as to enable the architect to develop a monument out of an idea?"

By the scientific branch of his studies the architect becomes familiar with methods of construction, the nature and intensity of forces acting and the resistance of the material employed. The artistic branch teaches mainly architectural history. The student is overwhelmed with a mass of architectural monuments, assorted with regard to style, and referred to the different countries where built and the periods of time in which they were built. The purpose of these monuments, beyond the general indication that they are churches, temples, palaces, theatres, etc., etc., is not especially discussed in



St. Paul, Minn. THE "PIONEER PRESS" BUILDING. S. S. Beman, Architect.



· Residence of · Mr. John Matthews
· Riverside Drive · and · Ninetieth St. · · New York ·

· Lamb and Rich · · Architects ·

relation to social or religious progress or retrogression, and the influence of construction upon form is not carried beyond the necessary technical description of the monuments.

The impressions on the mind of the student at the completion of his training will best illustrate its efficiency. He believes all monuments of the past to be perfect works of art. They are all equally indisputable precedents for future efforts.

But few architects would be willing to risk their reputation on a Presbyterian Church in the Egyptian style, but many, probably a majority, will consent to build it in any other style whatever, and they will do it with a clear architectural conscience. The facts that Greek Temples were not meant to receive a congregation in their interior, that Roman architecture does not express religious edifices at all, and that Romanesque and Gothic architecture express a phase of Christianity as diverging from ultra-Protestantism as the religion of the Greeks and Romans, are not a bar to imitating these monuments for ultra-Protestant worship. It cannot be said that these architects are entirely oblivious of the incongruity of the problem; they certainly have a feeling (which means a vague impression which is in no sense the result of logical reasoning) that something will have to be done to pacify not architectural objections, but sectarian prejudices; they are content, however, with the conclusion that a certain amount of crudeness, plainness and nakedness of form and modeling will accomplish this purpose.

An architect familiar with methods of art composition before beginning to design would probably address the building committee somewhat in this wise:

You have retained me to build you a Gothic church, but in order to conceive such a church I need some instruction. If by stipulating for a Gothic church you mean that I shall avail myself of the progress of architecture up to the fourteenth centuty, I will only say that since that time the science of construction has been greatly advanced, and I must ask whether or not I am permitted to make use of this advance. I quite agree with you that, in the matter of artistic expression, the thirteenth century may be accepted as a culminating era. But if you expect a church edifice which will in form resemble the churches of the Middle Ages, you will probably be disappointed.

In order to arrive at a clear understanding of the subject, permit me to state my impressions of the architectural needs of a * * * church, and I beg you will correct me when I am wrong. In the first place a * * * church is not a place of worship—you say it is! but, pardon me, I speak in an architectural sense. What I mean is, that while an ultra-Protestant Church, theoretically, *is* a place of worship, practically, at least as far as worship can in a building be architecturally expressed, it is *not* a place of worship, simply because the congregation while assembled within the church does nothing that may be construed into an act of worship, hence cannot be visibly accommodated in doing this *nothing* by any modification of the building. I quite understand that the worship of God is fostered and mentally discussed in a church, and is also in a literary way illustrated by prayer from the pulpit. The congregation, however, remains quiescent.

The preaching and praying as performed by the minister, however, is a visible act. There is preaching on the one hand and listening by the congregation on the other. This act requires a structure, and that structure may be made to express the act. Without going into detailed description of the process, I may say that the result will be a form not unlike a theatre, not a modern theatre, but like a Greek theatre, covered with a roof. The scena, however, will be a simple cathedra. The roof may be a light iron construction in place of an awning. This iron construction is capable of expressive architectural treatment if properly understood. To illustrate the need of visible acts let us imagine a future progress of your church in the direction of its present spiritualizing tendencies. The sermon at present is practically a weekly re-



Albany, N. Y. SENATE STAIRCASE IN THE CAPITOL. Leopold Eidlitz, Architect.



New York City. MUSEUM OF NATURAL HISTORY. J. C. Cady & Co., Architects.

ligious essay read from the pulpit. This may in course of time be replaced by a monthly or quarterly religious magazine sent to the residences of the parishioners; hence you will need no church at all.

I trust you will not think me irreverent because I pursue this argument to an extreme. My object is to show clearly the necessity of a materialized idea for the purpose of art expression in any form, and more especially in that of an architectural monument."

Should an architect be bold enough to indulge in plain truths like the foregoing, his building committee would be surprised to the extent of employing one of his brethren who is willing to design a church without a definite idea, or in other words not to design a church at all, but to compose a picture of a Catholic church which shall be deprived of its architectural expression.

On the other hand, if a building committee should be found bold enough to have a church unlike those built by kindred congregations during the present century, for the sake of artistic truths, is the architect by his education enabled to design it for them? To illustrate: The most renowned prima donna is in the habit of practicing the scales for two or three hours daily. If she should neglect this training she would soon cease to be a prima donna. The architect of the present day never has practiced his architectural scales (viz., the construction and modeling of parts of structure) even during the years of study, and if he has done so then, to any extent he has ceased to do so since. A scientific analysis of any organism, such as a structural part, leads to a proportionate relation of masses (no matter what the factor of safety assumed), and this relation of masses is to the mechanical engineer almost always a surprising result, differing materially from conventional forms. Parts of structure are the elements of a harmony which forms finally the mass of the monument. If these elements are imperfectly studied, the result is a discord, and if not studied at all (and this is the prevailing practice), the result is without meaning or expression—a jumble of discordant and deformed elements.

His education has measurably familiarized the architect with a series of tunes of which he remembers but a limited number of interesting snatches. The moment he is called upon to design a building, these tunes and snatches of tunes rise in his mind, and if they fail to rise abundantly or to be directly available, he refreshes his memory by a resort to books and photographs. He begins to sketch a completed building by combining various architectural forms as found in ancient, mediæval and modern buildings, always provided that they seem picturesque and do not differ too much in style.

When such a sketch has arrived at a point when the architect says to himself "I like it," he hands it to a draughtsman to be drawn to a scale. In the meantime he proceeds with a similar sketch of the interior. It is soon found that the two sketches do not agree, the one or the other has to yield, generally the interior. Then the whole is turned over to the engineer of the office who is to contrive a construction which shall make this design a possible structure. This part of the work the architect dislikes more or less because, since his student years, he has become somewhat rusty in mathematics and mechanics.

This architectural engineer often finds it difficult to devise a practicable construction. There are loads without or with inadequate support; there is lateral stress with insufficient abutment. He refers the matter back to the architect in the hope of a change in the design which will avoid the defect. In this he is doomed to be disappointed. The architect cannot be induced to believe that his work of art is defective simply because it happens to be an imperfect mechanical organism, he is inclined to believe rather that his engineer but imperfectly understands mechanics. Tie-rods are resorted to in the place of abutments, and artificial trusses are introduced to discharge weights from weak supports upon others at a distance which are stronger than is required for the mechanical work they are doing.



Bar Harbor, Me. RESIDENCE OF J. S. KENNEDY, ESQ. Rowe & Baker, Architects.

Now the process of designing an architectural monument is just the reverse of all this. You begin with a single cell and construct it carefully and scientifically, selecting your material and constructive methods in accordance with the degree of strength and elegance due to the nature of the monument. By constructing it, is meant here that you build it in your mind and note your work down in a drawing, testing it mechanically as you progress, which means that you accompany your drawing with a strain sheet of the forces acting and the stress upon the material.

When each cell is separately treated in this manner you place them in proximity to each other in an order which will most effectually respond to the uses of the monument. When this is done, modifications of form and construction owing to the combination must be made to meet changed relations of forces. If you now look upon the exterior of the whole before any modeling or decoration is attempted you will find its masses and form not only expressive of the purposes of the monument, but entirely new in character.

A mechanical apparatus, a machine, is built by this process, and artistic expression is the result without a special effort.

Let us imagine a similar training and its result in case of the education of mechanical engineers. Let the student be instructed by one teacher in mathematics and dynamics and by another in the art of giving form to his engines which will express their functions. Let the latter teacher pursue the system of teaching the history of machines up to the thirteenth century and no further, with the special injunction to pupils that the forms of machines in practice must be purely those of any one era selected and that forms of different eras must not be combined. An engineer thus educated could not possibly design a steam-engine.

Leopold Eidlitz.

(TO BE CONTINUED.)



Byzantine Architecture.

NEO-BYZANTINE.

THE buildings of Justinian's days must be looked on as the culminating point of the Byzantine style, and the most magnificent memorials of his reign; for I do not know of what value his code, pandects, and institutes are in the present day, but law students have to be examined in them.

Many circumstances contributed to this. We suppose he had the advantage of the architects brought up in the schools founded by Constantine, and of the skill which had accrued to architects by the number of public buildings erected at Constantinople; for when Byzantine became the capital of the empire there was not only Constantine's palace to build, but the public offices, places of amusement, and palaces of the Senators, and, in consequence of the empire having become Christian, innumerable churches and monasteries. It is possible that much of the splendid materials stripped from every province of the empire by Constantine had not been used up; Justinian inherited thirteen millions from his predecessor; the arms of his generals had been successful, so he had the revenues of a good part of the old Roman Empire at his disposal—every temple had been plundered and its revenues sequestered, and every act of extortion was used to fill his treasury. Had it not been for his cowardice and foolishness in constantly paying heavy subsidies to the barbarians, which drained his coffers, and served only to invite fresh inroads, the expenditure on his buildings would have scarcely been felt, for they were a perennial source of income, as they still are, to the Turkish Empire.

After his time, every sort of disaster fell upon the Empire, the West was permanently wrested from it, and the constantly-increasing conquests of the Moslem were diminishing its extent, both in the East and in the West. Whatever merits subsequent buildings may have, nothing equal to Sta. Sophia is to be found. The Church of the Sti. Apostoli at Constantinople was built by Constantine, rebuilt by Justinian, and ultimately destroyed by Mohamed the Second for his own mosque. In Procopius there are passages which may lead us to believe that neither the drum nor the Latin Cross were after inventions, and, if this be true, we can hardly take either feature as a proof of Neo-Byzantine.



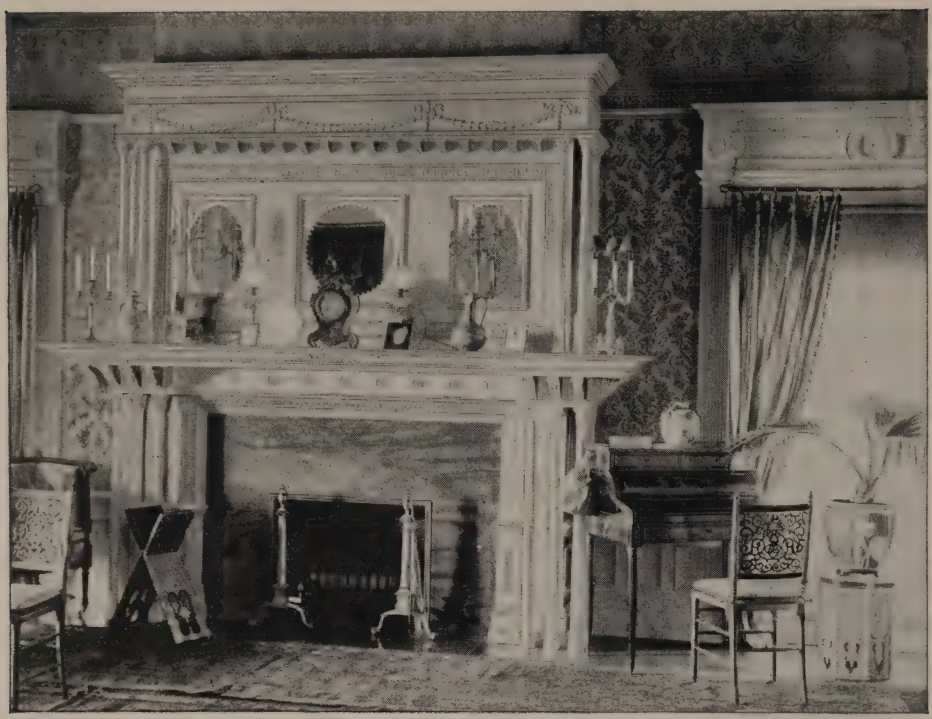
ENTRANCE HALL AND STAIRCASE IN THE RESIDENCE OF BENJAMIN BREWSTER, ESQ.

Cazenovia, N. Y. Stephenson & Greene, Architects.



HALL MANTELPIECE IN THE RESIDENCE OF BENJAMIN BREWSTER, ESQ.

Cazenovia, N. Y. Stephenson & Greene, Architects.



PARLOR MANTEL IN THE RESIDENCE OF BENJAMIN BREWSTER, ESQ.

Cazenovia, N. Y. Stephenson & Greene, Architects.

Procopius says (Procopius, Lib. 1, cap. 4): "In ancient times there was one church at Byzantium dedicated to all the Apostles, but through length of time it had become ruinous, and seemed not likely to stand much longer. Justinian took this entirely down, and was careful not only to rebuild it, but to render it more admirable, both in size and beauty; he carried out his intention in the following manner: Two lines were drawn in the form of a cross, joining one another in the middle, the upright one pointing to the rising and setting sun, and the other cross line towards the north and the south wind. These were surrounded by a circuit of walls, and within by columns placed both above and below; at the crossing of the two straight lines, that is, about the middle point of them, there is a place set apart, which may not be entered except by the priests, and which is, consequently, termed the sanctuary. The transepts which lie on each side of this, about the cross line, are of equal length; but that part of the upright line towards the setting sun is built so much longer than the other part as to form the figure of the cross. That part of the roof which is above the sanctuary is constructed like the middle part of the Church of Sophia, except that it yields to it in size; for the four arches are suspended and connected with one another in the same fashion, *the circular building standing above them is pierced with windows*, and the spherical dome which overarches it seems to be suspended in the air and not to stand upon a firm base, although it is perfectly secure.

In this manner the middle part of the roof is built; now, the roof over the four limbs of the church is constructed of the same size as that which I have described over the middle, with this one exception, that the wall underneath the spherical part is not pierced with windows. When he had completed the building of this sanctuary, the Apostles made it evident

to all that they were pleased and thoroughly delighted with the honor paid them by the Emperor." ("Procopius," Lib. I., cap. 4.) In this church Constantine and many of his successors were buried. Ducange says, "All the Christian Emperors."

I wish I could give you characteristic specimens of churches from the days



Cambridge, Mass. HALLWAY. Chamberlin & Whidden, Architects.

of Justinian to the end of the Byzantine Empire, arranged according to date, so that I could point out the tendencies that culminated in Neo-Byzantine, and follow them consecutively to the end, but there are no accurately published data to go upon. We have the school at Athens pursuing this subject, and several of our English antiquaries are devoting themselves to it. I may mention Professor Hayter Lewis, the Rev. Canon Curtis, and Dr. Freshfield, and it is probable that many other English antiquaries are doing the same, as well as those of France, Germany, Russia, and Greece. Whenever a sufficient number of examples are accurately drawn, and all the requisite information has been got from books and MSS., we shall be able to classify the churches and other buildings according to their centuries, just as we now can Gothic buildings. The dates of many Roman buildings have been ascertained from the stamps on the bricks, which show us at least that the buildings were not erected before the Emperor's accession in which the bricks were made.

In every style that was once alive, and that was not ossified by religious conservatism, there must have been in almost every building some peculiarity of plan, construction, or adornment at each successive period that, if sufficiently studied, would reveal to us its approximate date; but these indications must be studied with due regard to



SCHEME FOR DECORATION IN COLORED GESSO.
Henry W. Batley.

local peculiarities, and to the architectural schools that have produced them.

At present we must, to a great extent, be content with guesswork, and an important and interesting chapter of architectural history must have most of its pages left blank. Tracing the differences in plan, construction, and æsthetic treatment, of a long chronological succession of buildings of the same style, is attractive enough, and marking the various internal and external causes of variation is profoundly interesting, but without proper data it can only lead to false theories. In this case the influence of Byzantine architecture on Saracenic, Romanesque, Russian, and Gothic architecture has been very great—in fact, we may say that up to a certain period Saracenic is Byzantine; so there is all the more reason to encourage architects and antiquaries in their efforts to complete the subject and to solve the problems. The reasons for this neglect are not far to seek: the style itself was till lately looked upon with contempt. Huge gaps have been made in the sequence of buildings by their destruction. The rise of Saracenic architecture did, in some cases, alter the forms of existing buildings, and before and since that epoch successive alterations and rebuildings have left us uncertain as to what is original, what was produced as a colorable copy of the old, and what was entirely new; while the loss of records, the changes of name and their re-dedication by the Mussulmans have rendered it difficult or impossible to identify them. Almost insuperable difficulties existed, and to some extent still exist, in obtaining the requisite knowledge of the subject; many examples are in parts not easy to get at, and when got at the country certainly *was* in so lawless a condition that nothing could be done; violent Moslem fanaticism not only prevented the delineation of buildings, but even prevented their interiors from being seen, and some fanaticism in that direction does even now exist. Ware, in his book on vaults, published in 1822, tells us, in a humorous way, that if you want to get the particulars of Sta. Sophia you must turn Mussulman. It requires a good

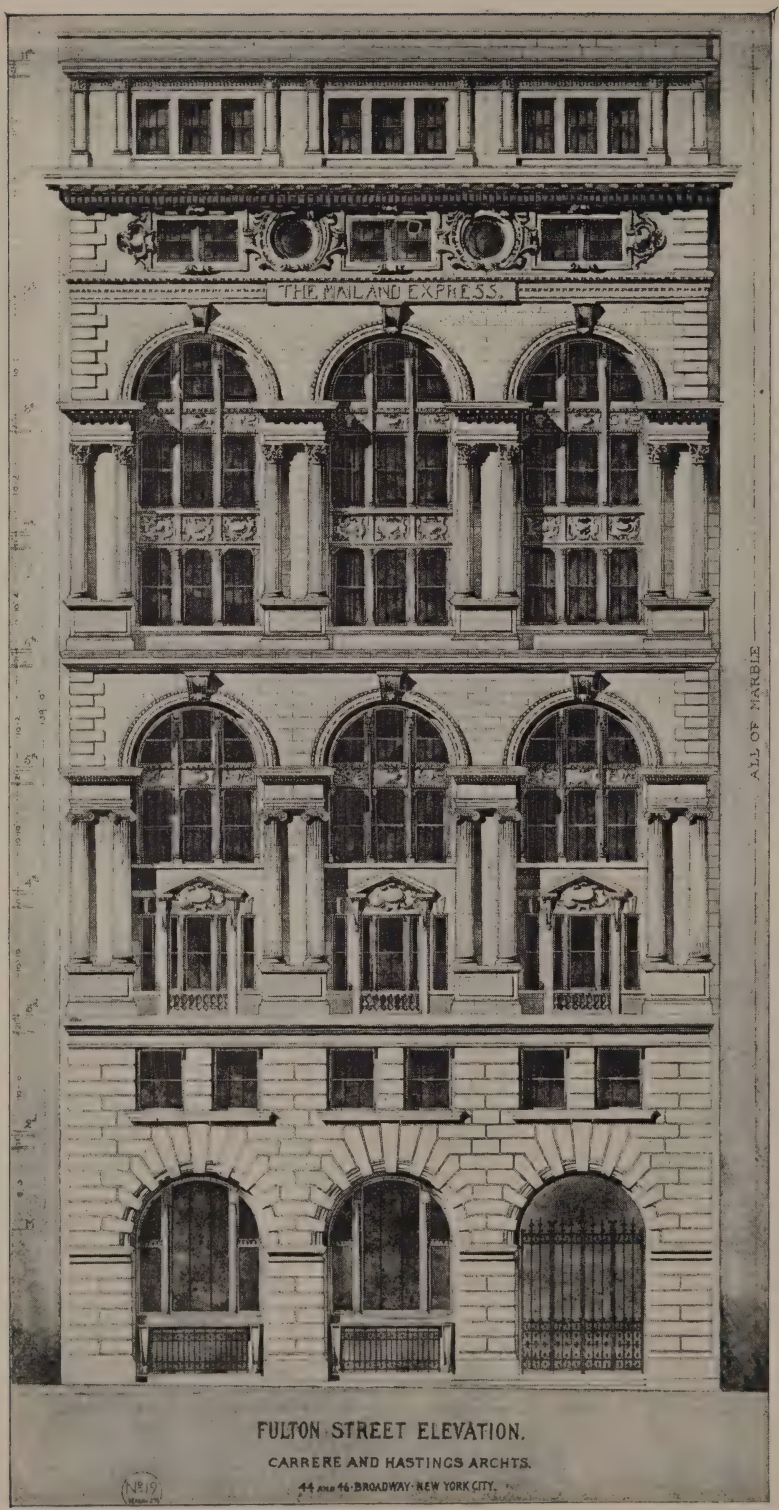


Boston, Mass. DINING ROOM INTERIOR.

Greek scholar to get some of the facts required from ancient writings, for I believe many of the Byzantine authors and MSS. are not translated; to follow it up locally you want to be a master of modern Greek and Turkish at least; besides, to many persons Byzantine history is not attractive, for, with some notable exceptions, it is the record of turbulent, cowardly and venal slaves, and of astute or worthless despots or their creatures, as destitute of courage as of humanity, playing savages against one another, while the most desperate maxims of Machiavelli were daily put into practice. Shakespeare's play of "Titus Andronicus" will give you some idea of the Byzantine Court. It is one of the episodes of history in which hypocrisy, ingratitude, treachery, cowardice, corruption and bestial vice is portrayed in blood, and accompanied by the groans of an oppressed people and the shrieks of the tortured.

Comparatively little has been published on Byzantine architecture, considering the vast areas over which it extended and the length of time it endured; we have, however, the magnificent work of Salzenberg on Sta. Sophia, on five other churches at Constantinople, and on three in Asia; but, unfortunately, the text is in German; if some German scholar would publish the text in English it would be a great boon to the profession.

Couchard published a book on some of the Byzantine churches in Greece, and Labarte on the Imperial Palace at Constantinople, Paspati on Constantinople, Texier and Pullan on Byzantine architecture, mainly on the churches at Salonica and Trebizond; Texier on Persia and Armenia, Verneilh on Byzantine architecture in France; there is also a magnificent work on St. Mark's, published by Onigania; the Marquis de Vogüe on Central Syria,



THE "MAIL AND EXPRESS" BUILDING.



New York City. NEW CRIMINAL COURT BUILDING. Thom & Wilson & Schaarschmidt, Architects.

Mr. A. J. Butler on the ancient Coptic churches of Egypt, and M. Choisy's great work on the art of building amongst the Byzantines, and within the last few years a new edition of an interesting little book by M. C. Bayet has been published on Byzantine art; but there are many examples contained in works on other subjects; in Hubsch, for example, on "Christian Architecture from Constantine to Charlemagne," in Isabelle's "Round Buildings and Domes," and in Mr. T. G. Jackson's "Dalmatia," but I know of no comprehensive work on the Byzantine churches of Greece, Asia Minor, Armenia, Mesopotamia and North Africa.

I personally feel towards the writers on Byzantine Architecture as Constantine did towards the bishops, he was ready to throw his cloak over their frailties; so I will only say that you must not be too sure that what is published is correct.

I do not know whether I made it clear that the buildings erected in Constantine's days were purely Roman, saving some little peculiarities that may have been introduced by the foreign architects and workmen, that the shape of the churches, with the exception of a few circular and polygonal ones, was that of the Roman Basilica. During the time that elapsed between Constantine and Justinian, the Christian church had been trying to settle the most convenient form for its ritual, and this form appears to have been pretty well agreed on by Justinian's time; the Basilica seems mostly to have been given up, and the Eastern church had more or less settled on a square for its nave, and on a dome for its covering, but the churches were often lengthened, not only by the Bema, but by other spaces to the East and West, so that in these cases they did not differ very materially in their proportions from a Basilica. When Byzantine architects had fitted a dome to a square by means of spherical pendentives, this dome and these pendentives had to be abutted, and this was done by means of other domes, half domes, or wide barrel vaults. The Church of St. Irene, built in Constantine's days, as an appendix to Sta. Sophia, was doubtless a basilica of the common form like Eski Djouma and St. Demetrius at Salonica, or St. John's studios at Constantinople. Ducange says it was a triple church, dedicated to the Virgin, to St. Theodora, not the Empress, I presume, and to St. Irene; after the fire in Justinian's days it was rebuilt, and afterwards Ducange says it was shaken by an earthquake in the days of Leo III., the Isaurian (717–741); it is now a Turkish armory, and although I used what influence I had I was unable to get into it. The present building was probably of Leo the Isaurian's time (717–741), for we see that a new system has been adopted to keep the old basilica form and to dome it; three pairs of piers were used after the manner of those at St. Demetrius at Salonica, but bigger and arched over to other piers in the external wall. The columns had been replaced by the piers of an arcade, and over the centre of the nave was a dome about 46 feet in diameter, abutted westwards by an oval dome, eastward by a barrel vault, and the half dome of the apse north and south by barrel vaults. The central dome has a tall drum; pierced with twenty windows below the dome, thus forming a lantern. From the days of Constantine to those of Justinian, the dome windows in the churches that are left, were mostly in the dome itself; and the drum is one, perhaps the chief, sign of the Neo-Byzantine, always supposing that the Sti. Apostoli had no drum. If S. Irene was still dedicated to the three saints, it had no apses to the aisles, probably following the form of the original basilica. The nave, from the face of the narthex to the end of the apse, is three times the diameter of the central dome, whilst Sta. Sophia at Constantinople, is only two and a-half times. I may as well take Sta. Sophia of Salonica, or Salonicco as it is now written, as my next example. This is the church that suffered in the late fire, and is of course now a mosque. It was empty, and mosques have been traditional places of security and of refuge. The unfortunate people who were burnt out in a section of the town adjoining it carried all their spare clothes, carpets, deeds, valuables, and

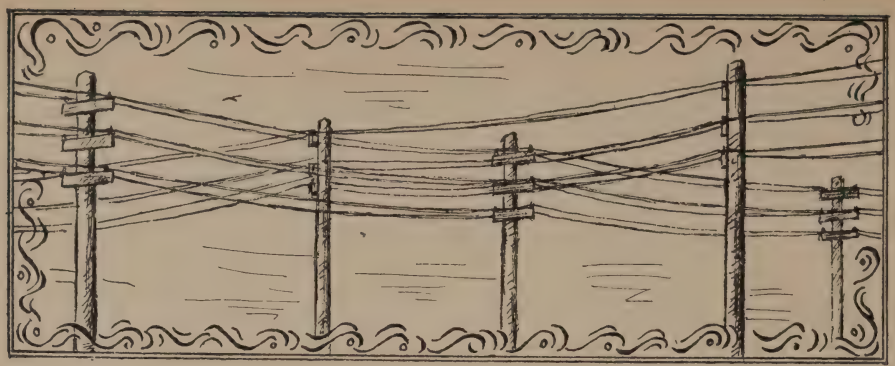
small articles of furniture into the mosque, which was separated by its garden and by a street from the fire; the wind was high and the mosque windowless; the sparks and embers flying in set fire to the combustible things stowed there. The flames ignited the wooden roofs of the portico, and of the upper galleries, which were all destroyed, and the deeds of the Mosque as well. Some of the Verd antique columns of the nave were shattered and the leaves of some of the white marble capitals on the opposite side were calcined ; some of these capitals have their leaves represented as bent by the wind, an idea that excited Mr. Ruskin's enthusiasm when he saw those at St. Mark's, though this form of enrichment seems to have been a stock pattern; still the sculptor who originally observed this effect of the wind on leaves, and was able to represent it in so architectural a way, deserves all the praise that can be bestowed on him; later civilized ages can always refine if they cannot invent. The brick work appears to have suffered no damage, though in many places the plaster was brought off, so this Mosque may give us a lesson of the advantages of using burnt brick for public monuments.

Texier and Pullan supposed that this cathedral was of the time of Justinian, and was built by Anthemius ; but I believe it was of later date, for it has three apses at the east end, a short drum to the dome, and the north and south arcades are set back, so as to get a wide barrel vault to abut the dome. If it were designed by Anthemius, we may reasonably suppose it was so designed before Sta. Sophia at Constantinople, for the following reasons. We hardly believe that Justinian, who was so anxious to get Sta. Sophia done that he had a room built to see the progress of the work, would have spared Anthemius, and Anthemius is said to have died in the second year after the great Sta. Sophia was begun, viz., in 534, yet it could not have been built before, for the extra abutment to the dome was to correct the weakness discovered at Sta. Sophia. The drum is a square one, pierced with three windows on each side below the springing of the dome.

Professor Aitchison.

(TO BE CONTINUED.)





CROSS-CURRENTS.

A MAN may be judged by his attitude towards tobacco. If Jones has never smoked he is probably a barren, self-centered, inhospitable person, or else a bit of a squeamish woman. Yet if this same Jones becomes a habitual smoker he is often a no better man, for in that case he may easily degenerate into a formless and ineffectual slave. Although it is something to his credit that he ever began to smoke, it is very much to his discredit that he never stopped it. Once having relinquished the practice he would have been richer by the experience, yet larger by the sacrifice; he would—happy man—have become progressively human.

Alas! how many of my readers have coquetted with tobacco, only to learn that it is a worthless, distracting weed? You number fewer, I fear, than those who with a dull lack of curiosity early shut it out of their lives. By far the majority of you doubtless believe that you smoke; but before you begin to call me names just consider whether in truth you do smoke. Puffing tobacco is not smoking, and nearly all men simply puff tobacco. It is trying to smoke; it may be even the beginning of smoking; but it is not smoking. Because a man "views" exhibitions of pictures and can tell the difference between a water-color and an oil-painting we do not call him an art critic; and because a man can stick a cigar in his mouth, pick a perfecto from a bunch of eschesitos, and boast with the best about Arcadian brands, I do not call him a smoker. His use of tobacco may rightfully have begun in imitation and may have settled into habit, but it has never blossomed into affection. The test is easily made. If Jones loves a cigar he will sacrifice something for it; whereas the ordinary tobacco puffer will sacrifice nothing. He tries to walk and smoke, or talk and smoke, or write and smoke, all at the same time, and consequently he talks, walks, writes and smokes badly. Tobacco is only a weed, but it demands more sacrifices than do the flowers. The practice of using it does not fit amicably into life and aid us in our other occupations, but is imposed on our nature and interferes with our duties. If smoking had ever been necessary to self-preservation, and natural selection had consequently embodied it in our constitutions, we should be using for the purpose not our mouths, which were never designed to be draughty chimneys, but some special aperture in the face, which would automatically puff the cigar. Nature, however, has made no provision for the practice, and although very generally adopted, it never has been and never will be assimilated. Few are foolish enough to pay, except temporarily and at long intervals, the homage which smoking demands.

The psychology of smoking is, then, a phase of the psychology of those who use tobacco with assiduous seriousness. The marks of the class are unmistakable. They always smoke a special brand of cigars, which is generally the best that the money can possibly purchase, although curiously enough this brand is altered several times a year. They lavish infinite patience and grave concern in coloring, flavoring and preserving remarkable pipes, and these pipes, saturated with nicotine and weary with wear, are piously put on a pedestal as warm and trusty friends and illimitable resources. All the incidents and appurtenances of the habit are surrounded with fanciful notions, but particularly the smoker likes to add to the business just a trace of mystery, as if there were some most important element in the relation between himself and his pipe which was solemn, yet inexplicable. And so our smoking friends make much out of what is essentially very little. Only a certain type of character takes tobacco thus earnestly and pervasively into its life, and this type the habit itself tends to harden and settle. All you multitudinous puffers of to-

bacco have loosening moments in which the spirit of the weed enters into your being, and you smoke; but fortunately these moments are rare, and when they do occur they are as ephemeral as the vanishing tobacco cloud itself. There are some men, however, who approach the type, and many are tending that way. Let them beware, lest they become thus formless.

First, then, the smoker tends to become formless, because the habit is fundamentally exclusive. The spirit of tobacco forbids any active participation in the affairs of the world. He whom it possesses must have an indifferent, self-absorbed disposition, which is reserved without being retiring, and which would merely smoke while Rome was burning, As the world in its flood passes by he does not care, but gives undivided attention to Himself, the Weed and the General Aspect of Things. Hence the gulf is great between one who smokes and one who does not smoke. The two cannot live together amicably; they can scarcely understand each other. A number of smokers can live together—after a fashion—but how do they live together? Let one who wishes to know read J. M. Barrie's "My Lady Nicotine." They are like a parcel of owls, each in his own mammoth cave of self, glum, irresponsible, egotistic, fanciful and loose. No wonder society says to the smoker: "Out of my sight. Get you to your own dens. Our common humanity and all the instincts of cleanliness are stifled with your weed." For if the spirit of smoking separates man from man, the physical side of the habit tends to increase the gulf. Chewing tobacco is supposed in polite society to be a vile and filthy habit; but is the smoking of a cigar so very much better? Strip your mind of your prejudices for a moment and think. Suppose that all the world did not smoke, and that a man, whose friends were refined people, should openly indulge in the habit, what manner of man would he be called? But the appearance and the smell of any smoking-room are enough.

All this may not seem to be germane to the psychology of smoking, but it is; for the psychology of smoking cannot be divorced from the ethics of smoking. The physical quite as much as the mental accompaniments of the habit give to it almost alone among our habits an immitigable exclusiveness. Curiously enough, an impression exists—widely, if I may judge from my own experience—that in smoking there is something social, that it tends to stimulation and expansion. Never was there a greater mistake; yet it is easy to see how this mistake originated. Men so very often combine smoking with drinking wine or spirits that the effects of the two are confused. Take the typical example of an after-dinner conversation. Our diners, let us say, have drunk enough, as diners frequently do, to share a slight feeling of exhilaration. The bottle, perhaps, does not cease to pass after the coffee comes; at all events its effects linger. As the cigars are being lighted, our friends are possessed by great flashing ideas, which, witless, they unbosom to their companions. Has tobacco aught to do with this volubility? It is the liquor and the liquor only. Your solemn and uncompromising smoker is always too much possessed by his cigar to lapse into lengthy and thoughtless conversation. Why should he talk? If he asked a question of anybody else, it might be suspected that there was something which he did not know; and an answer to an ignorant query would imply a call to enlighten a darkling world—a call that the true smoker never feels. His wisdom exists for himself. He regards with pity the spectacle of a man who tries at once to smoke and to talk with interested enthusiasm. As the cigar is sure to go out, say, twice, it has to be lighted three times, and a cigar three times lighted is twice dishonored.

Admit that smoking is exclusive, and I claim that smoking is damned, for exclusiveness has no motion but a false motion. It is cursed with theatrical assumption. By separating himself from the world, the smoker cuts himself in half. One half he locks up in his own bosom, the other he shows off. Both are equally false. Nobody can really smoke without being conscious of so doing; and hence nobody can really smoke without something of an air. It follows that although smokers are unsocial, they are not solitary. Theirs is an exclusiveness which lacks individuality, and which hangs as dependent on what it excludes as actors are dependent on an audience. The beginning of this phase of the psychology of smoking can be observed in the way a child takes up tobacco. At the outset, I believe, it is usually a matter of imitative assumption. The boy gathers that the habit is a manly privilege, in which, as his father tells him, he can have no share until he reaches man's estate, and he is at the same time advised by the sagacious parent, probably with cigar in mouth, that tobacco is an expensive and wicked indulgence. Thus the boy's vanity and perversity, as well as the atmosphere whereby he is surrounded, all drive him to smoking, and very much to his own discomfort he sticks to it until it becomes a habit. But meanwhile it has simply been a piece of bravado, in which he had

to indulge in order to show that he was what he was not. As he grows older he never gets over the way he looks when he is smoking. Have any of my readers noticed an undergraduate at college handle a pipe? It does not take a very keen eye to discern that he is thinking far more of himself and of the great effect he is creating than of his "bull-dog" or of his tobacco. Again, notice the expression of a cigar in a man's mouth. How clearly does it often betray that his smoking is part of his "show" life. I do not say that Jones may not puff tobacco unconsciously, but as soon as the undivided attention which a cigar demands is granted to it our friend becomes heavily conscious and hence passively or actively theatrical. An outsider might be deceived into believing that the good Jones is sedately thinking, but in truth he is not, for thinking implies progression. At best he is merely dwelling on his own thoughts—a melancholy rooster sitting on an empty egg. Like the small boy, he is trying to be what he is not.

The benighted retailer of tobacco is right. The sterile North American Indian not only typifies smoking; he is the typical smoker. Civilized Americans are doubtless in many respects an advance on their aboriginal predecessors, but as smokers they have immeasurably retrograded. The Indian is never at a loss to pass away time. He wraps his blanket around him, sits down and smokes his pipe. What a picture he makes! His lean face is absolutely impenetrable; there seems to be something grand, solemn and stable about his stoic calm. Though the world might shiver and crack he would still sit there in imperturbable assurance, puffing forth murky, fading tributes to his dark gods. The burden of life sits lightly upon him. If there is any hunting or fighting to be done he does not shirk the work or the danger; but when once returned to his wigwam he sinks again into the unspeakable density of the tobacco-self. And what about the smaller, crueller, deadlier duties? If the brave is too deeply self-inwoven to assume them, who should do it but his faithful squaw? This is a very different picture, my friends. Her feet are large, her hands tough and bony, and her back bowed with the burden of the papoose. She labors on, unheeding, tireless, while the mighty brave sits and—well, it is hard for mortal man to do nothing, so he smokes. As we see him we are often abashed by his assurance, but when we turn to the stooping squaw the cloak falls away and we learn the skinny thing he is. Have you ever reflected, good reader, that the advent of smoking is about coincident with the decline of chivalry.

Isabella, Queen of Spain, served her sex an ill turn in aiding Columbus to discover America, for if Adam civilized had never learned to smoke Eve would be a far, far happier person. As soon as she begins to feel, and, in her own way, to think, she is confronted, and for the most part overwhelmed, by the great fact of the alliance between Adam and tobacco. The enmity between the weed and herself is, I think, instinctive, but this enmity is so mixed with a wondering lack of comprehension that she is embarrassed in her pre-ordained fight with the baleful herb. She is disposed to adore Adam; she can understand his love for fine clothes, and the fact that Adam does a thing is doubtless on the whole very much in his favor; but why *must* he smoke? And if he does smoke cigars, why does he always cut off the end that he puts in his mouth? That is, why are not cigars manufactured with their ends already cut off? She wracks her head over these and kindred problems, and in the beginning perhaps she shyly questions Adam, innocently believing that men know why they do things. But not for long are her questions continued. She soon learns that it is Adam's disposition to treat her queries and comments with an amused or amiable disdain, as if there was something in it which she could not *possibly* understand. Neither does light succeed darkness if in a weak moment Adam drifts into explanatory replies, for when she gets down to the bottom she finds that all the sediment is not on top. Thus, either humiliated or baffled, she retires within herself at the spectacle of smoking. The instinctive hostility to the habit which is part of her nature is increased at the failure of her well-meant efforts at comprehension. She declares war upon tobacco and sedulously seeks to destroy its influence.

When Eve is unwise (alas! poor Eve!) her warfare takes an aggressively dialectic form. She errs in arguing the matter, not only because she is weak at argument, but because Adam inevitably casts her out as a prejudiced judge. Equally foolish and futile is Eve to make tobacco, as she often does, the root of all our physical ailments, for when Adam is not permitted to have a headache, pass a sleepless night, lose a pound of flesh or catch a silly cold without having all the blame laid on tabacco he naturally comes to scorn her powers of diagnosis. By such methods she simply alienates him and makes her final conquest all the more difficult. Yet she would be just as foolish to rest discouraged at her failure or to refrain from effort of another kind. Her fight is true and necessary, but, in order to succeed, she must use her own safe weapons. Much as she

may love plain and fair dealing Adam's touchy tobacco-self will not allow her to use it, so she must resort to strategy. Stevenson says that when a man marries he domesticates the Recording Angel. Eve come to wisdom takes this fact to heart; she embodies the Fate which pursues the smoker. Adam has to learn the lesson that his devotion to tobacco cuts him from much in life that is fair and tempting. Now, Adam, who really has a heart, is nearly as much disposed to adore Eve as Eve is to adore Adam. Even when she openly opposes the habit, although he smiles with nose in air and lords himself immeasurably superior, still he is not unwilling to admit (except to her) that she is justified in her opposition—well, just because she is a woman. If she pleads with him and shows interest in himself as well as hostility to tobacco, he may be persuaded to moderate his smoking. Hence he is measurably open to reason—applied in the right way. As soon as he finds that tobacco inevitably ostracizes him from her presence, and that any open indulgence in the weed creates a difference between them, he begins to make comparisons. It is virtually a fight between love of Eve and love of self, and who can doubt the result? For, in spite of all that Adam may say about his attachment to his pipe, it is a marriage without issue, and hence without permanence. So I believe that Eve has it in her power to triumph if only she would be wise. But, foolish, soft and tender as she is, she generally compromises her instincts for fear of losing Adam, or else arouses all of his masculine pride by weak attempts at verbal persuasion. In the latter case she drives him into being too much of a mere man, and in the former case she permits herself to be too little of a woman.

Some profane, insensible and trivially paradoxical scribblers have argued that women ought to smoke—for no other reason at bottom than that convention at present prohibits it. This dogma meets a powerful opposing one, which argues that women should not smoke for precisely the same reason. The philosopher in life, however, goes behind these superficial "views" and finds a deeper reason for Eve's abstention from tobacco—the reason, viz., that she is not Adam. Eve always wants to be doing something, and nobody who wants to be doing something could ever smoke. A woman's energy exists only to be spent; she values time principally because it is capable of being filled. Hence she occupies herself with a thousand little tasks—needle-work, household matters, piano playing, drawing, painting, anything for occupation. Her object seems to be to diffuse as much energy as possible throughout a life by concentrating as much as possible into every minute. She gives herself to Earth freely, eagerly, for, close as she is to the Busy Heart of Things, she must needs beat with it. Thus her motion through its intensive sympathies is the motion of life itself. She loses herself a thousand times, while Adam, heavy Adam, so much absorbed in his own weight, loses himself but once, or not at all; for Adam, be it observed, acts as if Time existed not only for spending but for hoarding. His gait, varying as it does, is considerably slower than Time's rapid flow, and as Time rushes past there is some little friction. This friction is the source of all Adam's power. Now and then some portion of Time's rich content will stick to his dense surface; he will store up a sensation here, a feeling there, both, perhaps, expanding into thought until he possesses manifold experience. This experience is possible just in proportion as he opens his nature hospitably to all that passes before it. Mother Earth gives more to Eve; by Adam more can be attained.

But Adam, wretched man, separated as he is from Mother Earth, is ever presuming on his freedom. Simply because he can offer some resistance to the torrent of life he likes to play at being his own master. Disdainfully ignoring all that Earth has to offer, he tries to make a world out of his poor little empty self. Fortunately it is not often that Eve permits him to wander far. As soon as his eye catches hers and love shines from one to the other, he returns, heavy Adam, a willing but rather awkward prisoner—returns to Nature's breast, whereof together they feed. But when Adam keeps on straying we may be sure that he has a cigar in his mouth. The serious smoker is all eye for self; he is blind and motionless—a thing apart. Fool! your soul might increase, your vision clarify, and the Glorious Spectacle of Life stretch out before you—Life, rich, vivid, lusty, diverse, ever dying, ever attaining, ever striving—did you not clog your spirit which is given of God with your foggy weed which comes of the Dirt. Eve's vain struggles against your possessing habit are waged for your own good. When you are involved in the smokeland of self-illusion she cannot help shrinking from you, and even though her heart overcomes the antipathy, there must always remain a difference, for she loves Adam because Adam can see. Says Goëthe's Lady:

> "Nobler far is what is true,
> For fresh blossoms it can shoot,
> Even in the time of fruit."

—*Primus.*

RAYMOND LEE.

CHAPTER V.

PREPARING THE WAY.

THE sway of Habit is more pernicious in the domain of Ideas than in any other of the regions of Life, in which that old tyrant makes slaves. I fear he has mentally bound all of us, Ixion-like, to some wheel, the movement of which we call freedom, the round of which we mistake for the undiscovered circumference of truth. Among the ideas which we cling to mainly from habit is the one that the actions of men are not predetermined, so that our careers are to be regarded as manifestations of causeless spontaneity. We look upon every act as a new creation, not as the inevitable consequence of pre-existing conditions that made a different result impossible. Yet, is not the most trivial act the last of a chain of actions long as Time itself. Go back, far as we may, we cannot get within sight of a beginning. The dawn light of the first day lies in the white cup of the lily in the garden, the exact spot where each snow flake falls and dissolves was determined by the beginning of things, and the creation has not ceased but is still continued in us and around us.

I beg you, dear reader, to take this bit of weak philosophy kindly, and if our opinions clash, we can mutually respect one another; for I am sure we both perceive that men philosophize only where they are ignorant, and philosophies represent merely the number of ways mankind have contrived to view the things they do not know.

So far as our history is concerned, the foregoing is apropos of this, which, despite philosophy, or opinion, as a faithful chronicler, I must set down: Long before Raymond Lee put his question to Mr. Fargus, events in the United States were directly preparing an answer to it. These events shaped themselves around one—Ralph Winter; and they carried him by a devious way into Eastchester, where in due time it will be our duty to find him.

* * * * * * *

Ralph Winter was one of those really good fellows, whom we have all met, who fail with everything. Their destiny never smiles. Poor thing; she is always in tears. These people usually are possessed of uncompromising strength, and, alas! uncompromising weakness; but it is impossible to make a combination of the two, and so obtain a good working average.

Winter's early days were passed in Pittsburgh, and if I speak of them, it is not because his was an exciting or exceptional childhood, but because our character—that troublesome appendage—is born with us, and never really changes; so that between Ralph the man and Ralph the lad there was not any essential difference. He was a loving, sensitive child, serious beyond his years without being manly; solitary and contemplative, yet quick to advance the fullest confidence at the bidding of his affections.

For one's happiness, it is fatal to be too intimate with oneself. Even when a lad Ralph had commenced a close watchful acquaintance with his own personality; the inner eye was always wakeful, and self-consciousness grew until when he reached manhood it completely mastered mental and emotional freedom. The tyranny of that inner self! "Is that feeling real?" it asked. "Perhaps they are laughing at you," it said. "Bah! You are a fool. That scorn, that enthusiasm, they do not deceive me. I saw how they were made." To be happy, we must be the heroes of at least our own lives; and the sundry ambitions of men are in no small part a striving for their own applause. Every man is his own dramatist, and tries to work some sort of a plot out of his own career, tries to subordinate to his *motif* the clashing incidents of daily existence, so that defeated or

victorious, sinning or sinned against, he is the hero. How we have to force the action of our little plays to do this, disregard the eternal verities, and assume that the gods in the gallery are blind and have lost taste for the legitimate drama, and so ring the curtain down on a *succèss d'estime.* But the first part of real heroship is the silencing of all questioning, the making oneself "current" with the whole world by the mere stamp of one's own image, after the manner of kings. Ralph was never able to accept himself, even at his own valuation.

He had the misfortune of being a "pretty child." His mother was a weak, good-hearted little woman, known among spiteful neighbors as "The Fountain," because, they said, she was given so much to "gushing" and emotional "outpouring." She was "domesticated," and, like little cage-bred birds, captivity at home was her natural condition. She kept Ralph tied to her apron strings until he was twelve years old, amid a little coterie of female sycophants who surrounded her and chorussed about her because of her wealth. These docile parasites, of course, "idolized the boy," who was "such a dear child." They kissed him and patted his curls —his mother's particular passion—and environed him with an atmosphere of femininity, from which a lad of robuster disposition would have escaped. It developed and fixed Ralph's natural weakness. The man in him grew sickly. He was sent to school for a few years, but was too studious to be "a boy." He was one of those sad things—an "example"—which none was wise enough to sorrow at. Parents possessed of prankish children who daily made it clearer that their destiny was to go to the devil, unable to perceive that to be healthy a child must acquire so much more than he ever studies, sighed and thought Heaven had been unfair in allotting so much cleanliness, gentleness and propriety to "that Winter's boy." Erasmus Syllable, M. A., who delighted more in one problem in arithmetic correctly done than in the tempering of character or the increase of mental vitality, loved Ralph, and gave him the best of his pedagogue's store. Those who have studied under Erasmus Syllable, M. A., know how great is his wealth of dessicated knowledge.

At twenty, Ralph was sent to Harvard with maternal flutterings, feminine sighs, exquisite underclothes and ample funds. Miss Dorcas, the regretful spinster, presented him with a pair of embroidered suspenders and a religious note containing the comforting assurance that she was positive he would never do anything that would grieve his dear mamma. Mrs. Emilia Blessing, the rector's wife, gave him "Christian Musings" in two volumes, which is sold only by subscription. Mrs. Asper, who spent so much of her time knitting her missionary ardor into heavy woolen stockings for the East Indian heathen, dropped into silk for him, which the sycophantic coterie were severally permitted to peep at and gush over. The poor, little mother struggled to make a festivity of the occasion, and worked for her prince as though his departure was a gay celebration for her; but, at the railway station, the heart rebelled and found its own voice in the tearful cry: "My own boy. Love me, Ralph. Write to me often."

At Harvard, Ralph was a failure. He was not a hard-working, routine student, and knowledge is not a flighty maiden whom suitors can allure, but a taskmaster exceedingly accurate in counting his tales. Instead of working steadily in the brickfields, Winter wandered off, Bohemian-like, at the slightest provocation in search of sunsets, wide prospects, pleasant sounds, and other matters of which degrees are not made. His acquisitions were vague, obtained rather by intuition and sympathy than by mental grasp. His mother wanted him to be a clergyman, for the Rev. Septimus Blessing was her ideal. If her son were only like that heavenly, eminently respectable man, who was so strong on the family side of life! Her wish crept into her letters, cautiously and timidly at first; but it grew bolder as her son revealed that he had no particular intentions about his own career, and was readier to withhold a decision than to make one.

The appeal in Religion for fervor was powerful with Ralph. Moreover, the seriousness of the calling and the social elevation of the personality which it conferred rather pleased him. It contained a pleasant insinuation for vanity, which was strong in Ralph. There is a sensuality in our higher

nature as in our lower. So, in time, the mother prevailed, and Ralph entered the Divinity School, and would in time have drifted into the Church and been lost to us in some second-rate provincial town had he not run against Ephriam Stacks. They met one evening casually in a debating society, when the subject under discussion was the "Nature of God." Ephriam Stacks, "red-headed Ephriam" he was called at college, was a born anarchist, as some men are by nature musicians, or painters, or moneymakers. Poor fellow, he died, as the reader probably remembers, drinking the health of the devil in carbolic acid. I recollect him well, with his wire-like red hair, stiff as a brush, his jerky manners, his passionate, energetic speech, his untidy habits, his strange fits of womanly tenderness. Unfortunately, on the night of the debate he had been drinking. After Orthodoxy had spoken, he steadied himself against his chair and launched a bacchanalian anathema against all divinities, religions, priests and priest-crafts. Those near to him endeavored to silence him, but before they succeeded the room was half empty, and Ralph Winter was among those that departed.

The next morning there came a solicitous little tap at Ralph's door, and Ephriam sober entered to apologize for Ephriam drunk. But Ephriam in his right mind did not wish to be misunderstood. There was to be no ambiguity in his position.

"Winter," said he, "I was a blackguard. I am sorry for last night. I want to beg your pardon. I intend to beg everybody's pardon. But, mind you, I don't want to be misunderstood. I am sorry only for how I said what I had to say, not for the substance of what I did say. I've no sympathy with your cursed tomfoolery and superstition."

Ralph expanded. He liked to take a "superior" position.

"Stacks," he replied, with the gravity of the moralist, "I must say your apology, in a sense, becomes you, but really I would rather hear you recant the matter of what you said than the manner."

"Bah," said Ephriam. "Stop that, Winter. I'm not thinking of my precious soul. See here; I like you," and a long bony finger was stretched out to Ralph. "I'm sorry to

see a man of your sort training to be a snivelling priest. There—there. Don't mind that. I can't help my expletives. But, really, Winter, you are *not* honest. I mean with yourself, and by and by you won't be with others."

Ralph did not like this manner of speaking; it touched his most susceptible spot. A hero conscious of the excellence and purity of his own intentions and not honest!

"You at least are candid," said Winter, coldly. "Unfortunately we cannot all reach the same heights."

"Bosh, Winter. Please don't give me any of *that*. We're talking seriously, I take it?"

"Oh, certainly," replied Winter.

Stacks paid no heed to Ralph's sarcastic tone and continued:

"Let me explain what I mean by saying you are not honest; for, needless to say, I don't mean you'd pick my pocket. But there is a dishonesty in our higher life which I think is even more censurable than common pelf or fraud. You'll go into the world shortly and pose as a believer, when really you haven't any belief."

"I don't know what reason you have for your belief that I will do anything of the kind," said Ralph, frigidly.

"I'll tell you. Do you think very highly of a cloistered virtue? If I lock myself up in a cell, would you consider me entitled to any great credit for honesty because I didn't steal your goods outside my door? Of course you wouldn't, and a cloistered belief like yours, Winter, shut up from test and trial, existing merely in name, has no greater reality than my cribbed virtue would have. Come out into the world of living faith, Winter, which is the world of ideas; try your belief, and cling to nothing but what you honestly hold. But you daren't be honest."

"I dare," cried Ralph, excitedly, rising.

An idea struck Stacks. "You dare. Then read with me, Winter. Study my side of the question with me and I will study yours with you."

"Agreed," cried Ralph. "It's a bargain."

"When shall we begin?"

"To-morrow."

* * * * * * *

Ephriam lived in out-of-the-way quarters in a cheap part of the town, for he was poor. He had a large room at the top of an old, shabby house, a room wherein there was no tidiness or order, and which stank like a menagerie; because Ephriam lived with two little blue-faced monkeys—St. Peter and Mary Mag, he called them; a jackdaw—Beelzebub; three parrots—Shadrach, Meshech and Abednego; a hedgehog—Piety; and a serpent, known as Eve.

The following day, when Ralph entered the room the odor nearly sickened him.

"Bah! Stacks," he said, holding his nose. "Great Heavens! What a den! You need carbolic acid."

Stacks was in a despondent mood.

"Yes," he said, in a low tone. "I need sweetness in my surroundings, Everybody kindly shows me that. I am told it in a thousand ways, lest I should forget it. I suppose I'm wrong, but I can't help it. Eh, St. Peter, why is it?"

The little blue-faced monkey in his arms gazed at him nervously for a moment, and then rested its head affectionately on Ephriam's shoulder.

"That's no answer, St. Peter," he said, stroking the little beast. "Winter," he continued, "I'm a born outcast, like the swineherds in old Egypt."

"Nonsense," said Winter, cheerily, touched for a moment by the fellow's despondency. "You estrange yourself from people, Stacks."

"How? Winter, how?"

"Well, for instance, by penning up yourself here with these animals."

"We're all animals, Winter, in a sense other than the physiological. These are my friends, all I have in the world, the only living creatures that have any affection for me or would miss me if I didn't turn up as usual to-morrow. Loneliness is a disease with some people, Winter, with me it's chronic."

When Ralph returned to his rooms he found Bob Sharp waiting for him, deep in the leather arm-chair, enveloped with a blue haze of smoke.

"I discovered your cigars, Win, and made myself at home. What in the devil kept you?"

"I've been with Stacks," said Winter in a preoccupied way.

"With that madman! Didn't you find him dangerous? You couldn't hire me to go into his den. Pott's hypothesis about Stacks is that he is the devil, and those two monkeys of his are two divinity graduates whom he transformed."

"Bob, you ought to know better than stimulate prejudice against a poor fellow who, unfortunately, creates enough enmity himself."

"Ho, ho! Indeed! Say, Ralph, do you know that a good fellow named Winter said to me last night that this very fellow Stacks was a disgrace to the college?"

"Yes," said Ralph; "and do you know that this very fellow Winter has learned to-day that our enmities and dislikes will rarely stand the test of really knowing people?"

"Then you have commenced to know Mr. Stacks?"

"I have commenced to know him," said Ralph.

There was so little of Stacks' nature hidden, he revealed himself almost as a child would to any one he liked, that to "know" him was not difficult. Ralph's pity for him and sympathy was the first touch which the solitary had felt in years of that divine power which is given to us to bring forth water and fertility in the wilderness. Ralph was delighted to see that as his kindliness penetrated deeper beneath Stacks' forbidding exterior flowers of that human sweetness which is the very perfume of life budded and blossomed. To please Winter, Ephriam went to work silently, with a desperate, childish effort, to keep his room tidy; and he blushed like a girl the first time Ralph caught him, in trowsers and a nightshirt, sweeping with an energy that almost made holes in the carpet, and threatened the existence of his menagerie by reason of the dust. He even consented to follow Ralph's advice about his attire.

"You are making a dandy of me, Winter," he said, when the latter gave him a clothes-brush and extracted a promise that it would be used faithfully every morning.

But, though Stacks was the child in these matters, mentally he was greatly the superior of Winter. Ralph's mind was

of the sympathetic sort that follows, that absorbs unconsciously part of whatever it touches. Over and over again he did battle fiercely with Stacks for his opinions, and the argument always ended undecided, with Ralph stubbornly fighting for a position which at the moment he could not perceive he had abandoned. Yet, very often it happened that the next day he would advance to somebody else the essential part of Stacks' argument and maintain it as his own. The outcome was inevitable. Stacks triumphed; he overthrew every positive fragment of Ralph's faith, so that Ralph was stricken with spiritual lassitude. The ardor which had led him to contemplate entering the Church subsided, and was replaced by an indifference which made him the sport of circumstances.

CHAPTER VI.

THE ROAD TO EASTCHESTER.

DURING one of his visits home he was taken sick, and when the question of his returning to Harvard arose he said he thought it would be better for him to abandon college and a career in the Church, and adopt his father's profession. Now, Abraham Winter was an architect, the leader, which the reader probably recalls, of the Rococo revival in this country. He was born in England, and coming to the United States before Ralph was born, formed quickly two partnerships, one of a professional nature with Horace Stone—the firm's title being Winter & Stone—and the other of a matrimonial character with Miss Catherine Tee, daughter of Nicholas Tee, the great Pittsburgh iron manufacturer, known outside of trade circles for his perfervid advocacy of Protection, and for his philosophic work, the "Rhetoric of Industrial Progress". Ralph was their only child.

It is impossible to say how long the ability of Winter & Stone might have been unrecognized had not Chance, the good godmother of Genius, in the person of a friendly arbiter in the commission appointed by Gov. Boys to build

a new municipal building in Filchburg, worked so hard with his fellow-commissioners in favor of Winter & Stone, that their plans, bearing the legend "Integritas," were accepted. The design was a florid piece of millinery in stone. There was a profusion of sculpture and carving all over the building that convinced the public that it was Art; and when the public "get" Art, they always "get" it as old colored Chloe said she got religion—badly. So when the great manufacturing town of Sootville shortly afterwards needed a new court-house she decided that she, too, wanted Art, and where was she so sure of getting it as in the offices of Winter & Stone? As the great court-house was even more ornate and "striking" than the Municipal Building, it was voted a greater success, and the newspapers, who have so keen an eye for such things, came out, all over the land, and declared, in that convincing, undoubted tone of theirs, that the Sootville court-house was the triumph of American architecture, and demonstrated, in conjunction with the Parthenon and other ancient works, that Republics were the great seats of Art. After this, Winter & Stone could scarcely attend to the business that poured in upon them from all quarters. Their work, all of course in the Rococo style, was soon to be found in every considerable city in the Union. They had forty draughtsmen constantly employed in their offices, and their architectural mill turned out designs by the score, each of which, the papers declared, were so "classic in proportion and detail;"—designs of office buildings, town mansions, country villas, hotels, churches—a facile abundance of design that was the envy of other less prosperous architects, who, to float on the tide of prosperity, cast away their heavy freight of Gothic, or Romanesque, or what not, and strove with might and main to out-Rococo the great Rococo firm. But Winter & Stone were wise in their generation. They left no stone unturned to fasten their art and the success attending it on a sound foundation. They joined all the great social clubs, and hobnobbed and dined and wined with the rich of the land. Then it was that Abraham Winter aspired to and captured the hand of Nicholas Tee's daughter, not because he had any great

affection for the meek little doll, so the envious said—but can we believe them?—but because Nicholas was about to spend a prince's fortune in building the great Tee palace to house his pride, and it was whispered that Ditcher, Clamp & Razee, who were strong in the matter of social connections and pure classic, would surely be commissioned. But Rococo prevailed. Abraham captured the daughter and drew the designs. For two years the world watched the progress of the work, and read with avidity of the $150,000 grotto bath-room, with its figures of Neptune and Amphitrite, and its nymphs ceaselessly pouring water out of golden urns into the depths of emerald glass cunningly made and lighted from beneath to imitate the bottom of the ocean: and of how the great French painter, Delatête, who hitherto had positively never performed out of Paris, was imported to decorate the quarter-of-a-million-dollar bedroom, on the walls and ceiling of which he depicted Nicholas Tee as a shapely and rejuvenated Vulcan, with Mrs. Tee, minus attire and at least thirty of her years, languishing in his arms as Venus. Enemies of Tee have called this superb piece of work the "Painter's Revenge;" but to this day, for the life of him, Tee cannot see why.

It is hardly necessary to tell the judicious reader that a fellow like Ralph was quite out of place in a firm like Winter & Stone, where the equilibrium between social considerations and Rococo was maintained with so nice, one might say with so exquisite a touch. It was too delicate a mixture, this architecture *à la mode*, to be intrusted to such hot hands as Ralph's. He read Ruskin, and lost faith in Rococo. He told the heads of the firm that for the sake of the eternal verities they should instantly return to Gothic traditions, and when the "traditions of the firm" were advanced as a counter-argument, declared the whole Rococo movement the prostitution of art to commerce. Ralph had not learned that you cannot reform in the adytum. He upset a "big job" by telling the great Jacob Haggelsheimer, of Haggelsheimer & Mosenstein, the manufacturers of the world-renowned Begum corset, that it was not art that he wanted in his fourteen-story office building, but a "rent-trap" with which any Jewish architectural peddler could

supply him. After this episode, Winter *père* suggested that his son had better make the trip to Europe which he had been contemplating, and as Ralph was of the same mind he packed up his trunks and departed for an indefinite period.

* * * * * * *

One of the first manly possessions acquired by Ralph was a piano. The reader, no doubt, will see in this an indication of our friend's character; he was a musician by temperament, if he was not one by skill. However, his musical attainments, even when at college, were not of a mean order. He was naturally gifted, and his taste in musical matters was generally sound and modern—that is, German. Consequently, when, in the course of his wanderings on the continent, he met the great Herr Posner at Hildesheim, at an entertainment given by Mr. Augustus Smith, the United States Consul, a Pittsburgh politician, he, being musically the one-eyed king among the blind, interested the good-natured German, who said after hearing him play his (Posner's) own op. 357:

"Ah, that su–blime gombosition! Mein vriend, you have the music dember: Stud-ee," and the great man tapped his own broad forehead with one of his big fat fingers. Posner was, if possible, prouder of his English than of his music, as indeed we all are of the accomplishments which are only indifferently ours. This word of encouragement from so exalted a sphere—for did not Posner's admirers rapturously compare his music to that of the spheres?—set Ralph afire with enthusiasm. That night he dreamed that he was a great composer himself, and the friend of Bach and Mendelssohn and Schubert and Posner, and others of the world's great lords of melody. The following morning he made straight for the little ancient, half-timbered house, of which there are so many in Hildesheim, wherein the big musician lived, and did not depart until Herr Posner, despite protestations and excuses of many kinds, had consented to receive him as pupil. Then, for the first time, did Ralph experience the divine sensation of a purpose and a way in life. The old, dull world was transformed. The sandals of Hermes were on his feet, as they are on those of all who lift their eyes, be it ever so little, above the earth. Happy enchantment,

when youth sings in the heart, and the world is a maiden in love with us, courting us with delicious enticements and with promises that are perhaps all the more rapturous because they are so vague. Alas! that youth fails, and the divine enchantress grows old, and by and by beckons us on with hand that has become as feeble and scraggy as our own.

For more than a year Ralph studied with Posner, underwent the most arduous of dull musical toil, scaling the heights, he called it; but then the future, that golden apple of the Hesperides, was ripening for him, and who would shake the tree, knowing the harvest day to be at hand. Posner, whose heart was very big, grew to love Ralph almost as his own son, and said very pleasant things about his musical talent behind his back, but to his face he was for ever asserting with many gesticulations that Ralph would have "absolutely no musical existence, unless. . . ."

All would have been well, and Ralph might have realized his first dream, had not the greatest popular success, in New York, of Roubleoffski, on the pianos of a rival firm, aroused the ire and energy of the world-renowned manufacturers, Messrs. Keyes & Co. Everybody acquainted with advertising saw that it was absolutely necessary that they should forthwith import some one capable of scoring a still greater success on *their* instruments. And in all the wide world who was there except Posner that could rival Roubleoffski! There was none; so Posner must be procured at any price to play upon the pianos of Keyes & Co., and adds his testimony, in good English, to those of other great musicians (see advertisement for list), that no piano that he had ever touched (and he had used those of all the celebrated makers) could be compared for a moment for sweetness of tone, touch and durability, to the superb instruments of Messrs. Keyes & Co., one of which he would hereafter forever use, not only in his public concerts, but at home; all others being banished as unworthy of a discriminating virtuoso.

The outcome was that a gentlemanly agent, equipped with full powers from the home office, assailed the good Posner in his little home, and with a golden ladder scaled the musicians objections and fears, and forced him to surrender. By

mere weight of dollars he bent Posner, who mortally feared the sea journey and an undertaking in an unknown land, so far from home.

"Bah," he said, wiping the perspiration from his forehead as he closed his door on the agent of Keyes & Co. "Mein Gott, I am sold to barbarians."

And he sat down to the piano and played dirge-like music, prophetic of his captivity, but catching sight of Ralph, and perhaps noticing his dejection, he passed into a triumphal march ending with "Die Wacht am Rhine." He closed the piano with a bang.

"No more sorrows," he said, cheerily. "Vhen I return that house of Herr Bergomaster Steinitz I will buy."

The departure of Posner for the United States was a great blow to Ralph. It put a pause to his hopes and progress. He would have accompanied the musician to New York, indeed for a time he decided to make the trip. But on second thoughts he doubted the wisdom of the step. What was there for him to do in the United States? he asked. His musical studies would perforce be suspended. Posner would be busy with his engagements and Winter *père* had not evinced any particular desire for the return of his prodigal son. So, finally, Ralph decided to remain in Europe and await Posner's return. He would spend his time, he said, in traveling, and would begin his wanderings by going with Posner as far as London.

Posner had many friends in England. He had visited that country professionally many times, and, before he married, had resided there for three years. The musician arranged to have a month's leisure in London in order to drop in upon his friends and startle them (as he felt sure he would) with the wildness of his new enterprise. Perhaps it is our duty to confess that when the good Posner had subdued his fear of the sea voyage and had grown accustomed to the idea of visiting the United States it pleased him immensely. His big vanity was tickled. The barbarians had at least the discrimination to call *him*, and in a triumph who is over-curious about the captives.

Posner was welcomed with open arms by his friends in London. He strutted among them, we would say like a

peacock if we dared compare the great little musician to that songless bird. Wherever he went Ralph also went. Posner insisted upon his friend accompanying him, not only on his visits to his countrymen, such as Herr Max Pam, who was the leader of the Royal English Musical Society (Incorporated), and Herr Heinrich Himmel, who conducted the Thursday Popular Concerts, but members of the aristocracy, among whom were the Duke of Holborn, whose daughter, Lady Fetter, Posner had taught; the eccentric Lady Wigs, whose house in Harley street was profanely called the "den of lions;" Sir Edward Mercer, M. P. for Battersea; Lord Orkney, son of the Duke of Shetland. But Ralph did not get to the end of Posner's list, much as he enjoyed the society of the great, for at the end of the first week in London he was stricken down with bronchitis, which might have been very serious but for the care he received from the good Posner who, in fear for his friend's safety, summoned a great many doctors, and what I think was of greater account, nursed Ralph night and day with the solicitude of a woman.

The day (inexorably fixed by contract) for Posner's departure for America arrived, and found Ralph just over the first stage of convalescence. Had it been possible, Posner would have remained with his friend, but it was financially impossible, and Ralph, who declared he was "all right," would, of course, not listen to any postponement of the voyage. He consented, however, to leave London, particularly as the doctor advised it. Now among Posner's friends was John Carroll, the organist in the cathedral at Eastchester, and the good German wrote to him and insisted peremptorily that he should make a place for Ralph in his home for a time. The organist consented readily (what would he not do for his old friend Posner, who described Ralph in very glowing terms?). So on the very day when Posner set off, weeping, for America, Winter took the train for Eastchester

CHAPTER VII.

EASTCHESTER.

THE reader knows that Eastchester—once famous for its flour mills and hops—fell asleep not less than three-quarters of a century ago. The railroad, on its way east passed through it without awakening it. The great modern manufacturing town of Smeltham arose only five miles away, yet its fires and smoke, which have fevered and soiled so many lives, have made no impression upon the drowsy calm of Eastchester. The old town sleeps, and people possessed of modern instincts wonder why the hubbub of its busy neighbor does not awaken it. It sleeps, in the valley among the low hills, — a town of narrow streets and old brick houses and gable roofs and green gardens, all clustered around the cathedral, about which the doves circle and coo as though they were the spirits of the years that have passed away. Time has made a Sabbath in the old town and filled the air with its soft enchantments and its benediction of peace. The hours slip away there with a cadence as sweet as the cathedral chimes. The bells in the tower intone (every quarter of an hour they add a line)—

> "Bitter is life,
> Fruitless the strife.
> This peace is best.
> Weary ones rest."

And for the hours, Big Tom thunders, "Gone! Gone!" and the reverberations pass, ghost like, through the streets and die tremulously among the hills. Thank Heaven that there are such places left on earth, where (to use a nobler language than mine) it is possible for us "to hush and bless ourselves with silence."

The railway enters Eastchester as railways enter most towns—by the back door. At the station, Ralph found a dilapidated vehicle which he engaged to take him to the

organist's house, which stood within sight of the western entrance of the cathedral. Ralph had expected to find Eastchester a modern provincial town with wide streets and narrow people. The reader can imagine his delight upon dropping, without preparatory anticipation, into the atmosphere and surroundings of the last century. As the old vehicle jolted through the tortuous narrow streets, passed the Kings Arms, with its bowling-green and Gothic windows filled with churchly little panes of glass, along High street where the shops are, with their ancient overhanging fronts, passed little trim, old-maidish houses and more dignified and masculine residences half hidden among great trees, he could have sung for very delight. He endeavored to arouse his driver to conversation; but that antique little individual sat—hat pulled down, collar of coat turned up, head drawn down—with his whip held out over his horse, dozing like a fisherman waiting for a bite, and refused to be communicative. Occasionally he aroused himself and flicked the horse, subsiding at once afterwards into rigidity and silence. Mr. Carroll lived in a plain, square, red brick house, with a classic porch and square, regularly-placed windows, built, I believe, in the days of George I. The house and the old-fashioned garden in front of it was inclosed with a high wall and an iron gate which swung between two brick piers, each surmounted by a large stone cannon-ball.

Mr. Carroll was a venerable, white-haired man, of quiet, soft manner. He spoke as seldom as possible and then said as little as possible. It might have been thought that he had an aversion to speech, but that wasn't so. His silence sprang from a torpid nature, and a slow mind that was willing to listen but was seldom inspired. His speech was mainly monosyllabic, and, in a way, he intoned his words. His wife was older than he. Her hair was also white —the silver of age—and she always wore a little quaker-like cap. She was a thin, little body, bent, but still quietly active. She moved about noiselessly. Her manner was meek and conciliatory, and when spoken to she had the habit of slowly rubbing her hands one over the other and bowing her head repeatedly in a gracious, assenting way, as though she feared people might think she

dared to differ from them. It seemed that her whole life had been spent in trying to agree with others. Ralph was welcomed in the kindest way by the old couple. They conducted him at once to a large room exquisitely prim and clean, furnished with old-fashioned rosewood furniture. The bed was draped with long curtains, pale with age, and the snow-white sheets smelt of lavender and the sunshine. The windows opened into the garden, then in the glory of June, and one of them was partly screened by tendrils of honeysuckle. Ralph was delighted. He paced about the room when he was alone, surveying it in every nook and corner. He had a keen relish for propriety and cleanliness, and here they were, indeed, in the highest degree. As he said in a letter to his mother, he felt "nice all over."

Ralph unpacked his trunks with a pleasant feeling of being at home, and descended to the parlor. He was greeted by Mrs. Carroll, who had enveloped herself in a big Holland apron, and was busy before a table piled with tea-things and silver, and a number of pots of different sizes sealed with white paper like little bonnets with pink strings—the outward and visible signs, which we all remember, of home-made preserves. Turning to her husband, she said:

"John, dear, what can we do for Mr. Winter. I am afraid he will not feel at home to-night. You see, sir," she continued, addressing Ralph, bowing and rubbing her hands as she spoke, "the Dean and a few friends are coming to spend the evening with us, and while we shall all be delighted if you care to be one of us, perhaps not being very strong, you...."

She turned to her husband, inquiringly, but that gentleman merely said vaguely:

"Yes, Martha."

"Oh, I am quite strong," said Ralph, noticing the good lady's embarrassment. "I have picked up wonderfully in the last day or two, and shall be most delighted, I am sure, if you will allow me to be with you to-night."

Mrs. Carroll said "Ah," in a sigh of relief, and smiled and recontinued her work polishing the china.

"You are looking pretty well, sir, if I may say so. John, perhaps Mr. Winter would like to see the garden."

Ralph declared that he would, and the organist, whose movements, like his speech, were languid, arose slowly and fetched an old straw hat and a thick silver-handled cane.

"What a delightful place this is," said Ralph, as they stepped out into the sunshine. "I never dreamed of coming to so beautiful a spot."

"Yes," the old man intoned vacantly.

"This house must be very old, I mean old as we Americans count," said Ralph cheerily, wishing to get on an easy footing with his new friend.

"Yes," said the old man, in the same indifferent tone; "but 'The Oaks' where Colonel Leo lives are older."

"Indeed," said Ralph, as though the news greatly surprised him. "Herr Posner never told me that Eastchester was so ancient a town. Was he ever here?"

"Yes, years ago. Herr Posner is a good man. He stayed here some time."

"What a grand musician he is," said Ralph, enthusiastically.

"Yes—yes," said the old man, brightening, "when I was young I dreamed of music such as he played. Ah!...."

He stooped and liberated tenderly a rose which the leaves half covered.

"I see, Mr. Carroll, you are fond of flowers," said Ralph. "Your garden is beautiful."

The organist turned his face full to Ralph's and smiled sadly:

"They are our only children now," he said, simply.

The story of a life's disappointment was told in those words. They quickened the beating of Ralph's heart. Impulsively he slipped one of his hands into the old man's and thus the two paced down the garden-walk.

"Everything is as she left it," said the old man. "I try hard to keep everything as she left it, but the flowers die, too."

"Yes," said Ralph, softly.

"I have never plucked one," the old man continued. "Not one these four years. I watch them all wither as she did. She planted that rose tree, sir" (he turned round

and looked toward it), "and the last buds we gathered from it are on her breast."

He said no more, and Ralph felt that he could not break the silence. They reached the iron gate, and beyond, at the end of the narrow lane which led to the house, was the cathedral. The organist observed that it arrested Ralph's attention.

"Perhaps you would like to see the cathedral?" he asked. But Ralph saw that the old man was not in a mood for the visit and he replied:

"It would be better, perhaps, some other time."

The old man said, "Thank you," and they turned around, and, getting to the porch again, Mr. Carroll, in a tone wherein kindness and courtesy were blended, said:

"My wife may need me. You will allow me to leave you now, sir, won't you? Be at home here. We are very glad to have you with us."

The organist took a seat in the room where his wife was working and for a time was silent. Then he said: "Martha, that is a very nice young man," and Mrs. Carroll, whom Ralph already had pleasantly impressed, said: "Yes, John; I think the Dean will like him."

* * * * * * *

Ralph discovered a rustic bench under the apple tree on the lawn. He stretched himself at full length upon it, and looking upward through the openings in the leaves watched the clouds as they sailed above him. His conversation with the old organist had saddened him, touched his thoughts, which wandered slowly over his mind like the clouds above him, with a half-pleasant melancholy. His early days returned to him, mute witnesses to so much that he did not perceive when they were living time, and not, as now, the ghosts which the memory conjured up. His mother's love—that divine tenderness—his hopes—for Ralph had always traveled much beyond himself—the faith that he had lost, his father's dissatisfaction with him, his present purposeless existence; dear, dear, how the thoughts at last crowded in upon him, and jostled one another. The retrospect pained him.

"Bah!" he cried aloud, in disgust, jumping to his feet.

"What have I done? Other people have made my life, not myself."

"Oh!" exclaimed some one in front of him, and a girl, perhaps we should say a woman, beside the very rose bush at which he and the old organist had stood, turned quickly around and faced him.

"I beg your pardon," he said, noticing her alarm, and at a loss for something better, continued: "May I go and call Mrs. Carroll for you."

She had taken off her straw hat and tied it over her arm by the strings. Still confused, she hastened to put it on again.

"No, no, thank you," she said, striving with her hair which the wind had loosened. "Please don't trouble, I will find her myself;" and suiting action to word she hurried up the path to the house.

Ah! the meditations of youth, how quickly they change! The soft voice was singing in Ralph's ear, the large brown eyes filled with alarm were still fixed on his, and he could still see the blush on the cheeks, fair as the roses beside her.

"Who is she," he thought. Then he heard Mrs. Carroll's greeting on the porch:

"Well, Marian, at last! I had given you up, dear."

And Ralph whispered to himself as he reseated himself on the bench: "Marian, eh?"

A man seldom wants to know more than that about a pretty woman.

To be continued.

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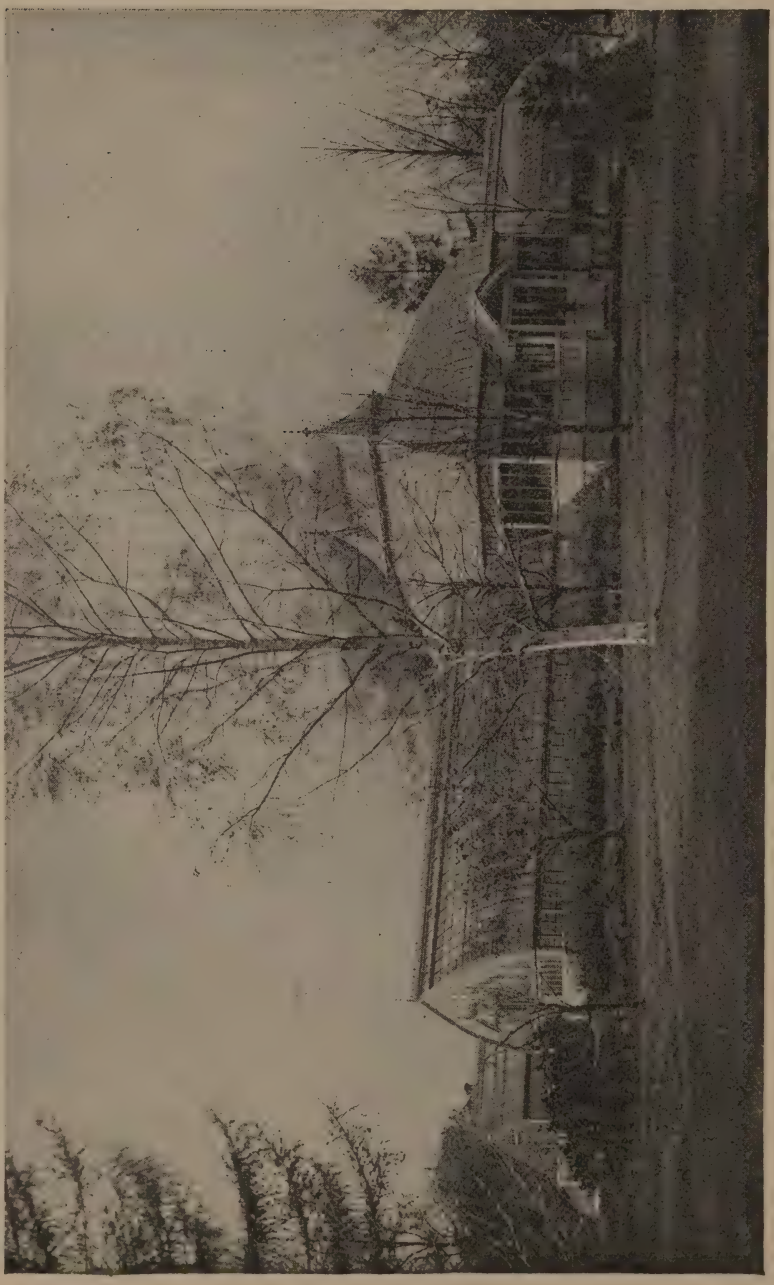
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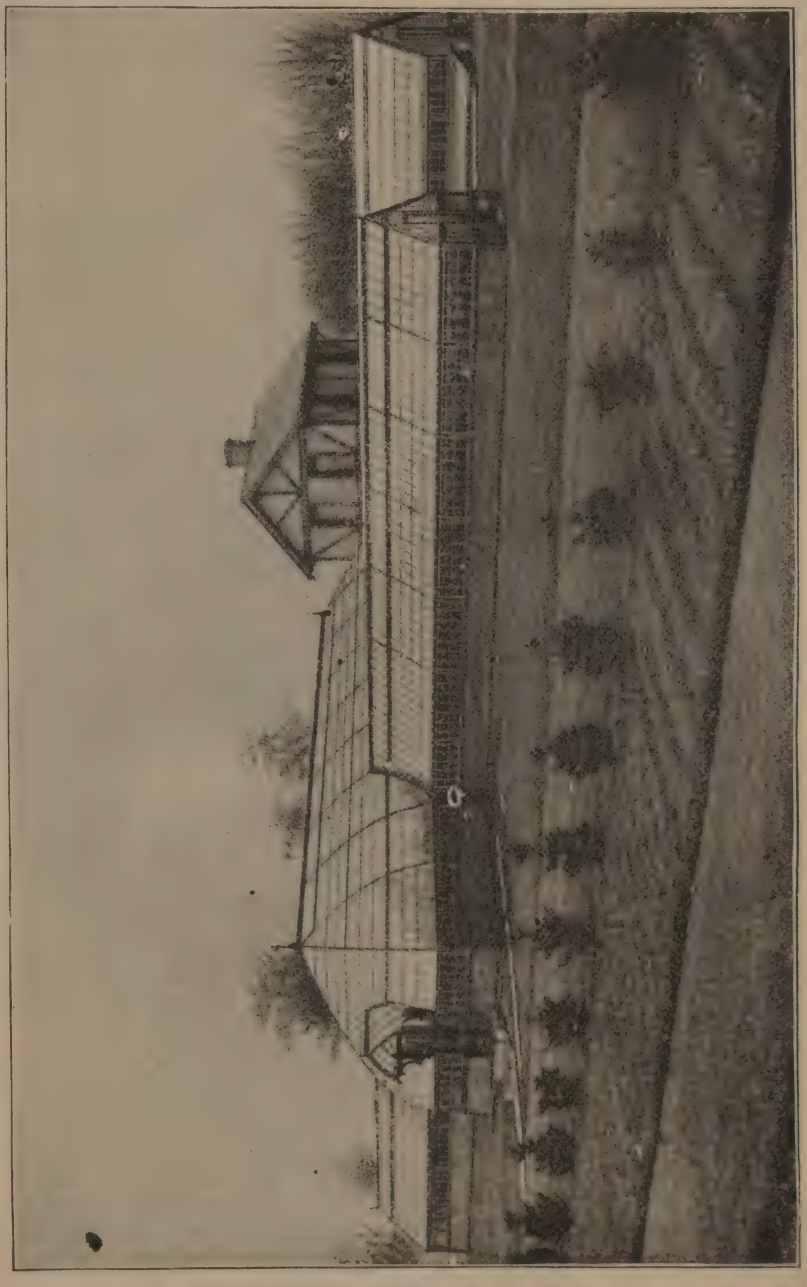
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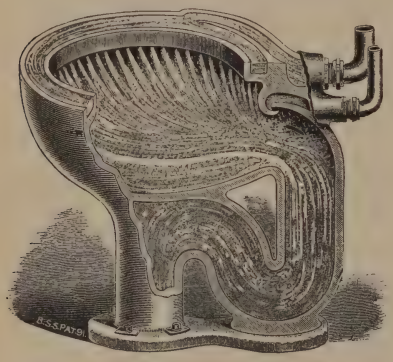
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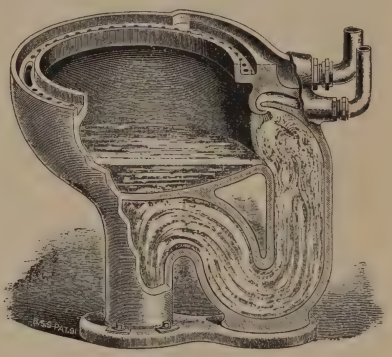
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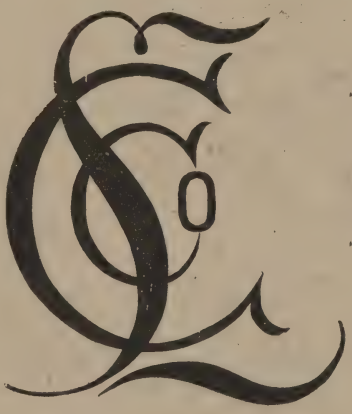
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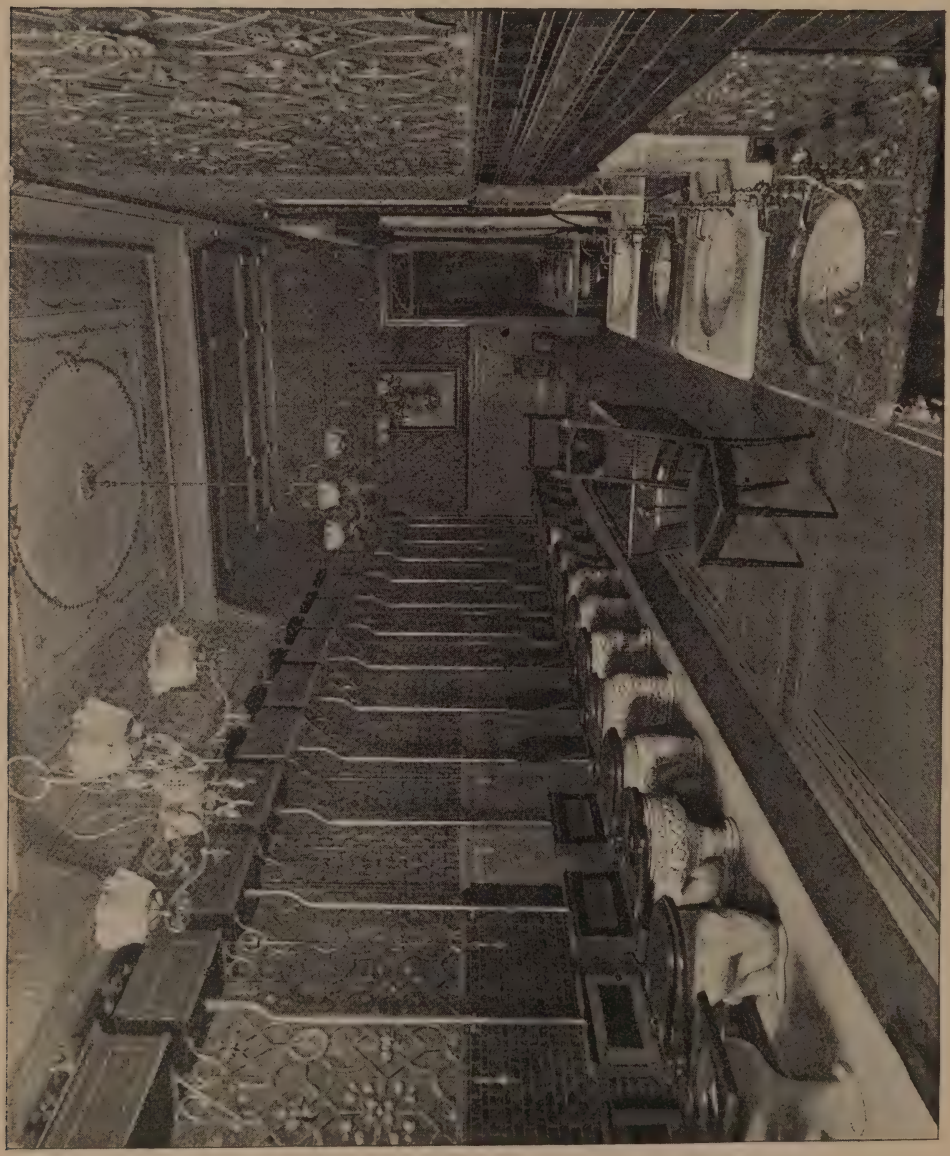
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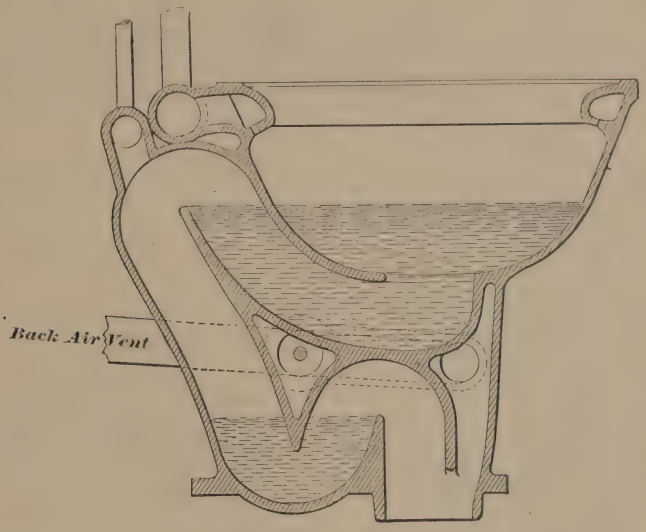
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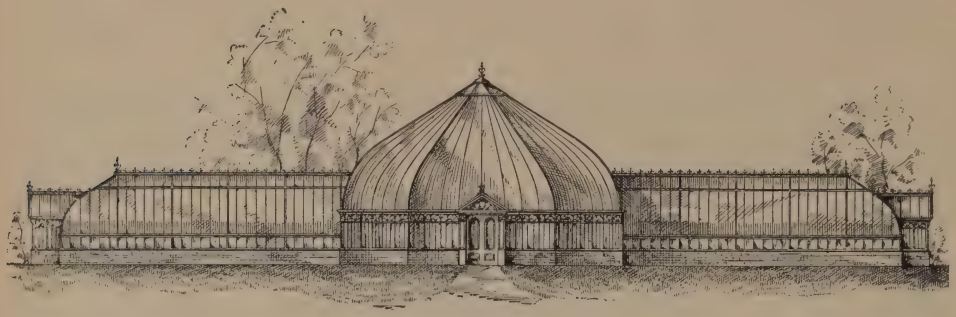
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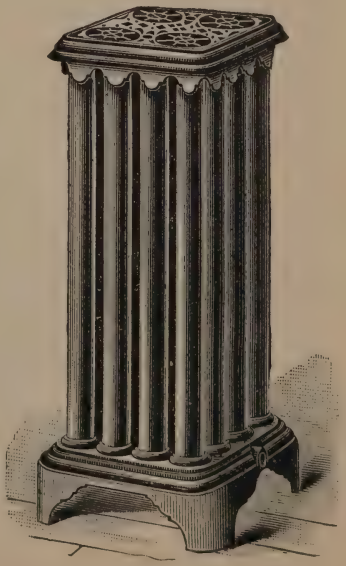
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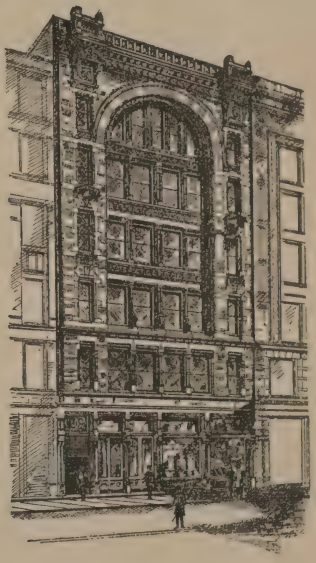
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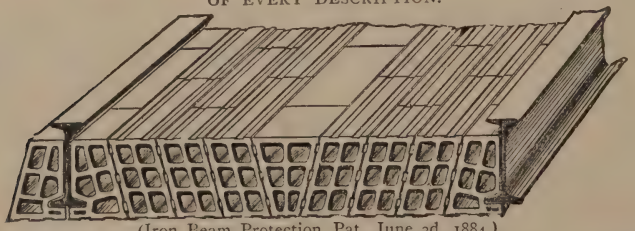
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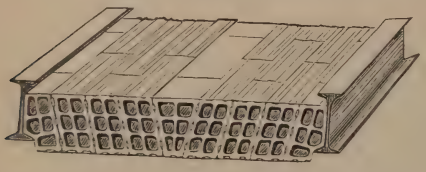
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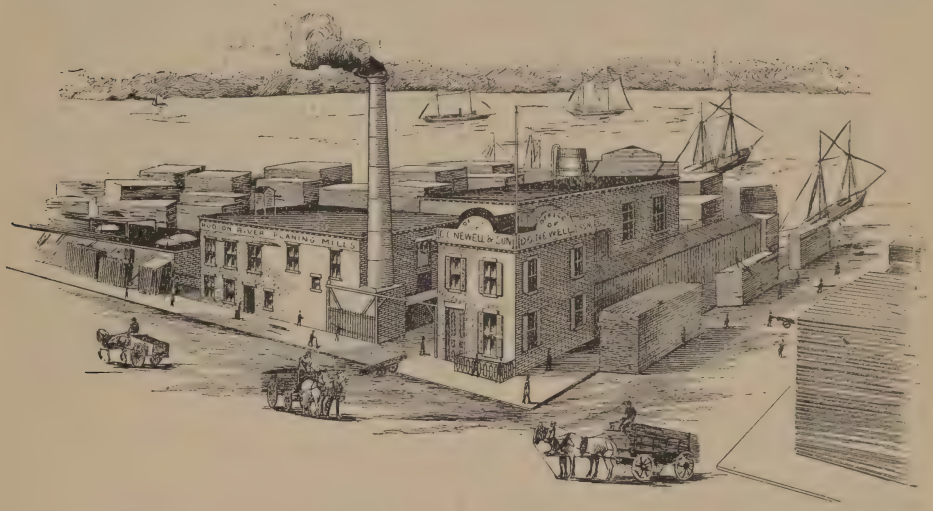
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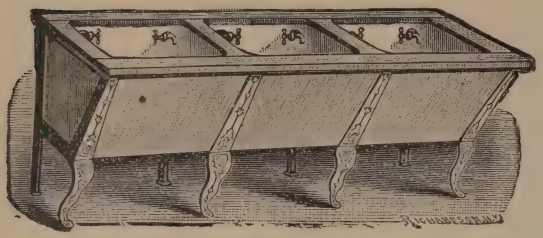
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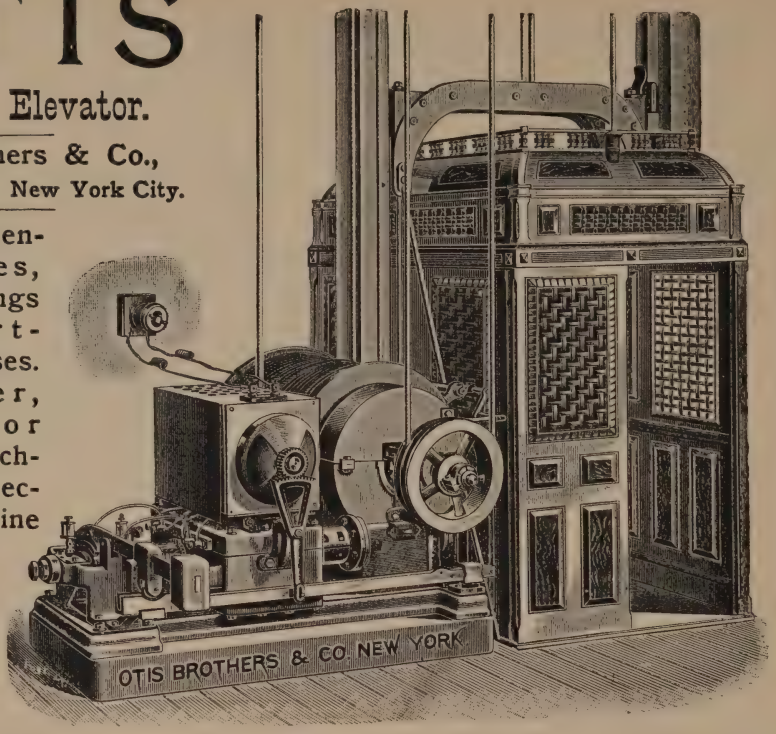
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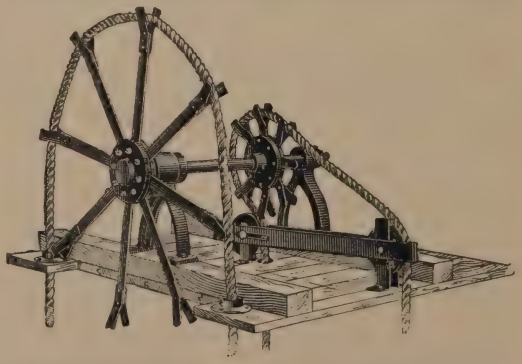
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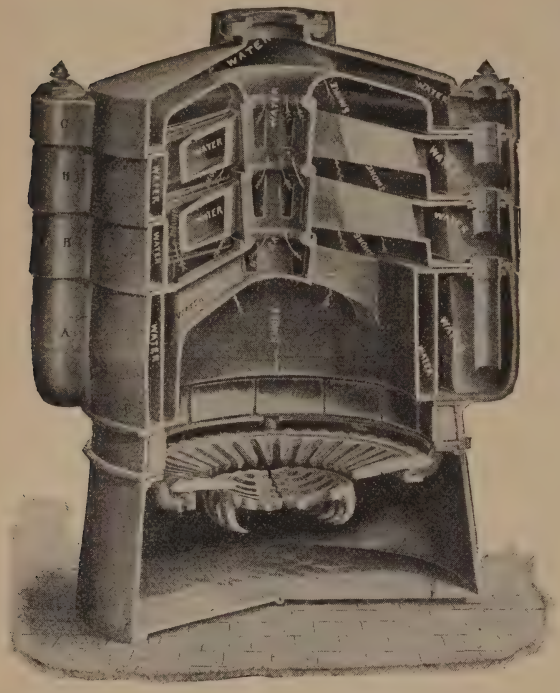
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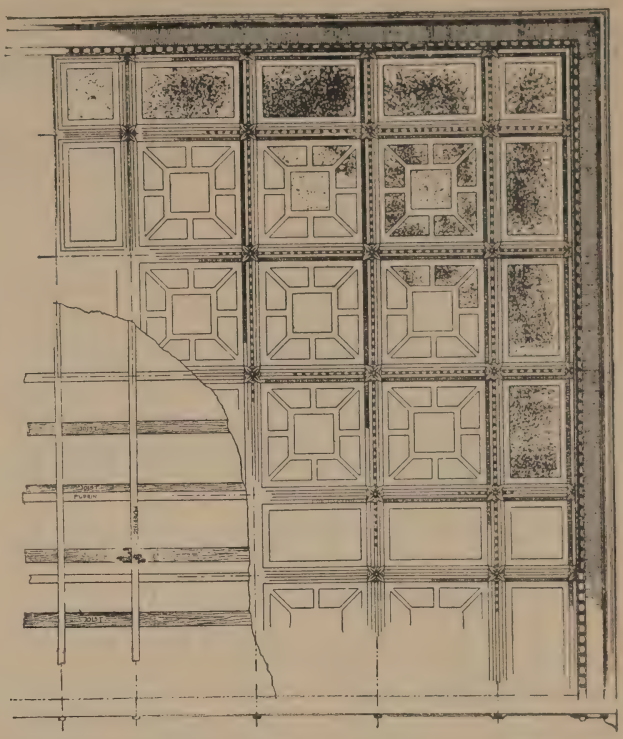
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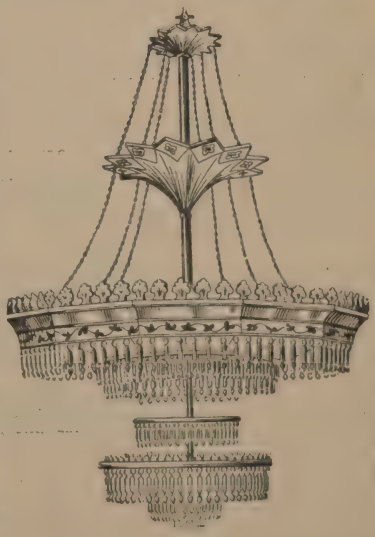
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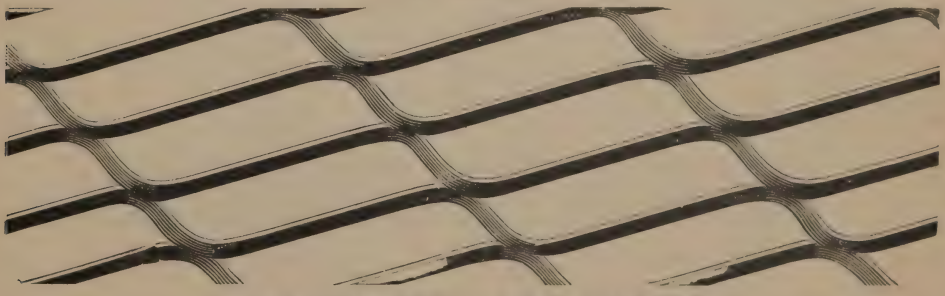
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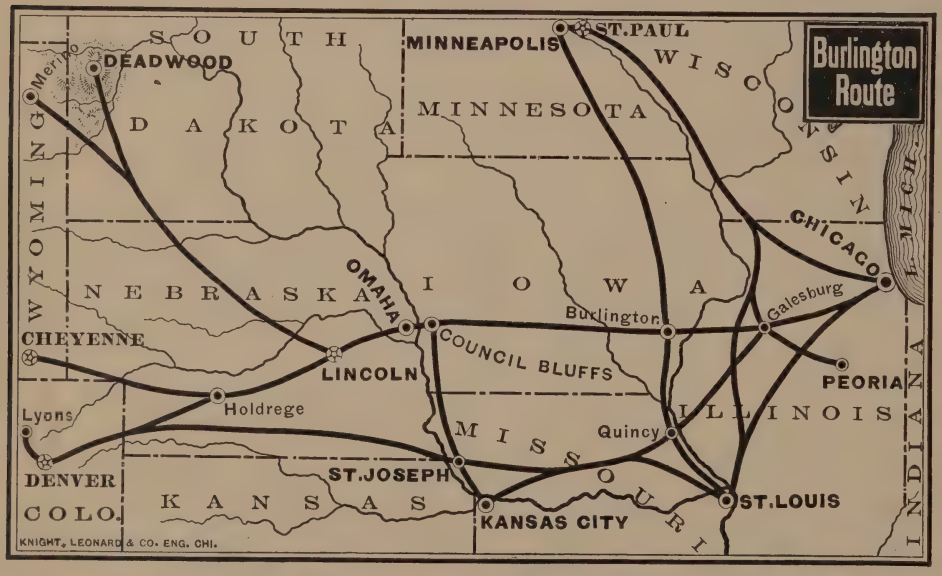
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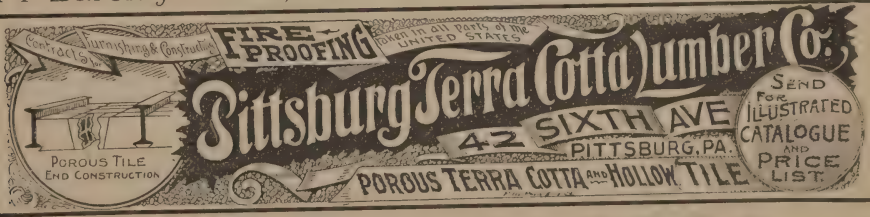
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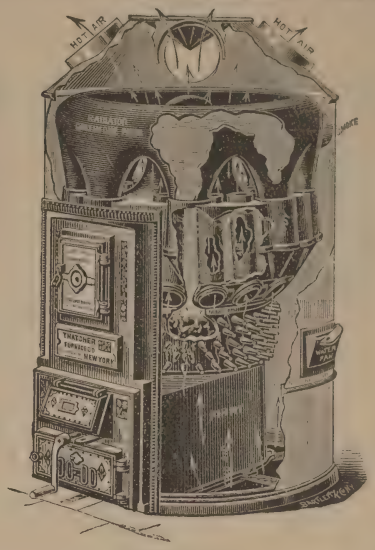
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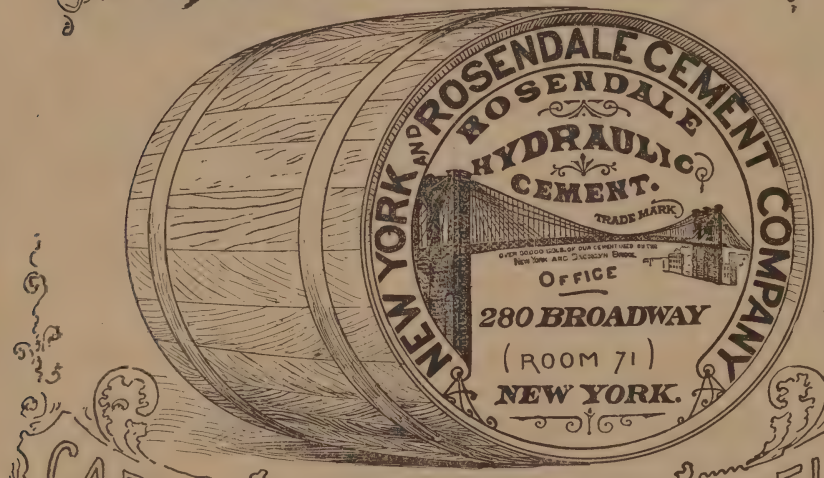
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